

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
16 May 2002 (16.05.2002)

PCT

(10) International Publication Number  
**WO 02/37939 A2**

(51) International Patent Classification: Not classified

(21) International Application Number: PCT/US01/50942

(22) International Filing Date: 19 October 2001 (19.10.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/241,661 20 October 2000 (20.10.2000) US  
09/932,656 17 August 2001 (17.08.2001) US  
09/932,517 17 August 2001 (17.08.2001) US

(71) Applicant: DESKNET, INC. [US/US]; 83 Maiden Lane,  
New York, NY 10038 (US).

(72) Inventors: FITZSIMONS, Edgar, Michael; 207 East  
74th Street, New York, NY 10021 (US). FITZSIMONS,  
Brian, G.; 15 Fox Hill Lane, Short Hills, NJ 07078 (US).  
LANGENBACH, Erik, Richard; 2 Juengst Road, Croton  
Falls, NY 10519 (US).

(74) Agent: HUGHES, Christopher, A.; Morgan & Finnegan,  
LLP, 345 Park Avenue, New York, New York 10154 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI,  
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA,  
ZW.

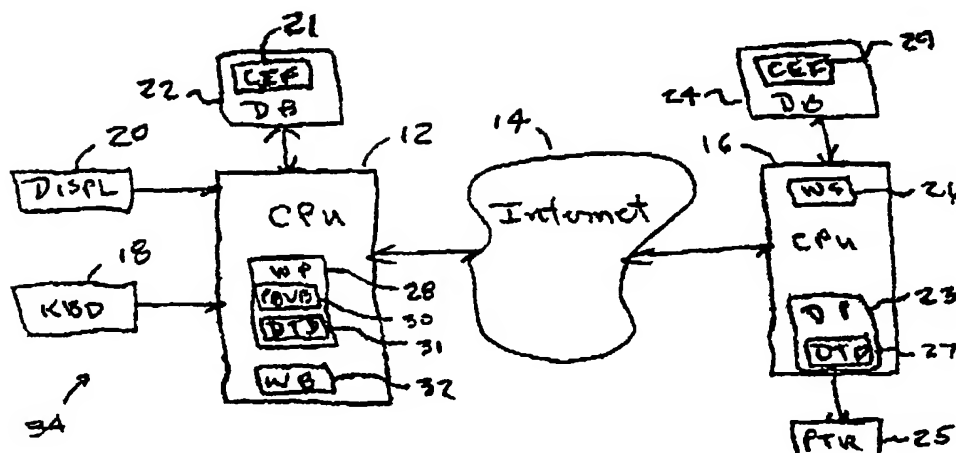
(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian  
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European  
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,  
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,  
CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,  
TG).

**Published:**

— without international search report and to be republished  
upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: METHOD OF CONSTRUCTING A COMPOSITE IMAGE



(57) Abstract: A method and apparatus are provided for constructing a composite image within an image space of a webpage. The method includes displaying a plurality of source images within a content area of the webpage and dividing the image space of the composite image into a plurality of subspaces. The method further includes designating a subspace of the plurality of subspaces for receipt of a selected image of the plurality of images and resizing the selected image to fit the designated subspace of the composite image.



WO 02/37939 A2

## METHOD OF CONSTRUCTING A COMPOSITE IMAGE

### FIELD

The field of the invention relates to the Internet and more specifically to method of constructing and transmitting images over the Internet.

### BACKGROUND

Computer networks, in general, and the Internet, in specific, have become a vast resource of information. With the aid of a personal computer (PC) and web browser, a user may connect and retrieve information on virtually any subject matter.

Using the browser, a user can locate and access any of a number of search engines through the Internet. From the search engines, a webpage may be downloaded for the entry of search terms. Through the proper entry of search terms, any range of images and text may be located and downloaded to a user.

Once downloaded to a user, the user may review the information on-line or print it out. Alternatively, the user may store the information to disk.

While the information downloaded from the Internet is useful, it typically downloaded under a hypertext transport protocol (HTTP). While HTTP is useful for storing and printing, it is not particularly easy to manipulate and combine files. Other protocols, such as XML, are available, but have not been developed into useful applications. Accordingly, a need exists for applications which allow for the easy manipulation and combining of web based documents.

### SUMMARY

A method and apparatus are provided for constructing a composite image within an image space of webpage. The method includes displaying plurality of source images within a content area of the webpage and dividing the image space of the composite image into a plurality of subspaces. The method further includes designating a subspace of the plurality of subspaces for receipt of a selected image

1 of the plurality of images and resizing the selected image to fit the designated  
2 subspace of the composite image.

3

#### 4 BRIEF DESCRIPTION OF THE DRAWINGS

5 FIG. 1 is a block diagram of a system for constructing a composite image in  
6 accordance with an illustrated embodiment of the invention;

7 FIG. 2 is login screen that may be used by the system of FIG. 1;

8 FIG. 3 is a subject matter selection screen that may be used by the system of  
9 FIG. 1;

10 FIG. 4 depicts a further subject matter selection screen that may be used by  
11 the system of FIG. 1;

12 FIG. 5 depicts a template selection screen that maybe used by the system of  
13 FIG. 1;

14 FIG. 6 depicts a selected template and content area that may be used by the  
15 system of FIG. 1;

16 FIG. 7 depicts a floating toolbar that may be used by the system of FIG. 1;

17 FIG. 8 depicts details of content selection that may be used by the system of  
18 FIG. 1;

19 FIG. 9 depicts further details of content selection that may be used by the  
20 system of FIG. 1;

21 FIG. 10 depicts content that may be used in the composite image by the  
22 system of FIG. 1;

23 FIG. 11 depicts details of construction of the composite image constructed  
24 by the system of FIG. 1;

25 FIG. 12 depicts details of image transfer to the composite image constructed  
26 by the system of FIG. 1;

27 FIG. 13 depicts details the composite image constructed by the system of  
28 FIG. 1;

29 FIG. 14 depicts details of text transfer to the composite image constructed  
30 by the system of FIG. 1;

1           FIG. 15 depicts details of creation of the composite image constructed by  
2   the system of FIG. 1;

3           FIG. 16 depicts. a composite image constructed by the system of FIG. 1;  
4   and

5           FIG. 17 depicts a screen for editing composite images that may be used by  
6   the system of FIG. 1.

7           Appendix I depicts a DTD that may be used by the system of FIG. 1.

8           Appendix II depicts a composite image file that may be generated from the  
9   composite image of FIG. 17.

## DETAILED DESCRIPTION

FIG. 1 is a block diagram of a system 10, shown generally under an illustrated embodiment of the invention, for collecting, composing and transmitting images through the Internet. As used herein, an image includes: an illustration; photo; text; multimedia components such as, but not limited to, video, hypertext, etc.; and/or the like. A composite image includes more than one image.

Included within the system 10 may be an operators station 34. The operators station 34 may include a central processing unit (CPU) 12 with an appropriate web browser 32, a display 20 and keyboard 18. The operators station 34 may also include a database 22 which may function as a source and also a destination of images.

The operators station 34 may include a connection to the Internet 14. Also coupled to the Internet 14 may be one or more servers (e.g., CPUs) 16, including websites 26 and databases 24. The servers 16 may also function as both a source and destination of images as described in more detail below.

Under the illustrated embodiment, an operator (not shown) working through the operators station 34 may access a website 26 and download a webpage 28 containing the software constructs (e.g., a page building via browser (PBVB) tool 30) for processing composite images. The PBVB tool 30 is a configurable tool, which brings page layout functionality to the Internet. Communication between the operators station 34 and website 26 for downloading of the PBVB tool 30 (and subsequent communication) may occur through the standard HTTP port 80 of the operators station 34.

As described in more detail below, the PBVB tool 30 provides a facility and an intuitive interface for placing content within a template. Since it may be retrieved from a website, it is inherently simple to access from remote locations and easy to install. Further, since the PBVB tool 30 may be downloaded from a common website of an organization, the organization may more easily enforce business rules through the use of embedded templates.

1 In general, the PBVB 30 may be written as a Java applet and run inside the  
2 browser 32. Providing the PBVB 30 as a Java applet allows PBVB 30 to be easily  
3 used in conjunction with Microsoft Internet Explorer or Netscape Navigator  
4 browsers on either PC or Macintosh platforms.

5 Further, to facilitate operation of the PBVB 30, data may be delivered to  
6 and routed from the PBVB 30 under a common format (e.g., XML). The use of  
7 XML simplifies image manipulation and composite image construction by  
8 providing a format which is Internet compatible and which is easily adapted to both  
9 text and image processing.

10 The preparation of composite images may be useful for any of a number of  
11 uses. For example, the operator may use the workstation 34 to retrieve text and  
12 graphical representations from any of a number of Internet or local sources and  
13 combine such information into virtually any form of instructional or sales literature  
14 (e.g., catalogs).

15 Following is a description of a process that may be used for the creation of a  
16 catalog. While the description below is directed to a specific type of composite  
17 image, it should be understood that the described process may be extended to  
18 virtually any situation.

19 In order to perform construction of a composite image, the operator (after  
20 accessing the website 26 and downloading webpage 28 and PBVB 30) may first be  
21 presented with a sign-on screen 40 (FIG. 2). The operator may enter his user name  
22 in a first box 42 and password in a second box 44, followed by activation of a login  
23 softkey.

24 Following sign-in to the system, the website 26 may download a webpage  
25 50 (FIG. 3) offering a set of file choices 52, 54, 56, 58 from which the composite  
26 images will be created. In the example of the catalog, the operator may activate the  
27 "Spring and Summer" option 58.

28 In response, a further webpage 60 may be downloaded from the website  
29 offering subdivisions 62, 64, 66, 68 of the file selection 58. As a further example  
30 of the catalog creation, the operator may select "Misses" 68.

1           In response, the website 26 may download a template selection webpage 70.  
2   Within the template selection webpage 70, a number of possible templates 72, 74,  
3   76 may be provided, any one of which may be used for creation of a composite  
4   image. A scroll bar 78 may be provided to access other choices of templates. In  
5   the example provided, the operator may select the lower template 76.

6           The templates may be divided into a number of boxes. Larger boxes may  
7   have smaller boxes inside. The smaller boxes may be text boxes and the larger  
8   boxes may be image boxes. For convenience text boxes may be shown with  
9   diagonal lines. However, this is for convenience only, in the sense that images may  
10   later be placed in text boxes and text placed in image boxes.

11          Upon selection of a template 76, the PBVB 30 may divide the display 80  
12   into a composing screen including first and second windows 82, 84 (FIG. 6). The  
13   first window 82 may be a content area for selecting source content for the  
14   composite image and the second window 84 displays the template within which the  
15   composite image is to be created. A floating toolbar 86 is also provided to facilitate  
16   creation of the composite image.

17          FIG. 7 provides further detail regarding the floating toolbar 86. As shown,  
18   a first icon 88 of a disk, allows the user to save the composite image. A second  
19   icon 90 allows the user to print the composite image. Third and fourth curved  
20   arrows 92, 94 allows the user to UNDO and REDO changes. A selection tool 96 is  
21   provided to select specific boxes of the template for insertion of content into the  
22   composite image. A text tool 98 is provided to edit text in specific boxes. Zoom-in  
23   and zoom-out boxes 100, 102 and a zoom-to-percentage box 104 are provided to  
24   enlarge or reduce portions of the composite image. A help box 106 is also  
25   provided. Finally, a box select tool 108 and line selection tool 107 are provided to  
26   insert additional boxes and lines into the template.

27          A user may click on the box selection tool 107 with a cursor 134 and then  
28   click on a desired location within the selected template. The location of the cursor  
29   134 when the key on the mouse was actuated becomes the upper left corner of a

1 new box. The user may enlarge the box by holding the actuating key on a mouse  
2 controller and dragging the new box to whatever size needed.

3 Similarly, the line tool 107 may be selected by placing the cursor 134 on the  
4 line selection icon 107 and clicking. To create lines, the user may first click on a  
5 starting position, move the cursor 134 to an end position and click a second time.

6 The content area 82 functions as a means to access source material for  
7 inclusion into the composite image. Within the content area 82, a first pull-down  
8 menu 110 may specify a data path to a particular data source (e.g., within a local  
9 directory, related database 22, Internet source 24, etc.). Once a source has been  
10 identified, first and second tabs 112, 114 may be used to select either text or images  
11 within the source file.

12 In the catalog example, a user may specify a specific pathname as a data  
13 source within a remote DB 24 (FIG. 1). Files identified by the pathname may be  
14 displayed in the pulldown menu 118 (FIG. 8) of content select 110. In the catalog  
15 example, the file names may be "Specific Product", "Special Items" and "Sale".  
16 The user may select "Specific Product". Some choices may require additional path  
17 information.

18 For example, selection of the directory name "Specific Product" may not be  
19 a complete path to a file. In this case, a window 120 (FIG. 9) may be displayed  
20 requesting a specific file name. The user enters an identifier in a file identifier box  
21 122 and activates the OK button. The information entered through the file  
22 identifier box 122 may be easily customized via a configuration file.

23 Upon identification of a file, the contents of the file may be displayed in the  
24 content area 82. Since the image tab 112 is highlighted in the content area 82,  
25 images 128, 130, 132 within the file 11SKU#; 12345-1211 are retrieved and  
26 displayed within the content display area 126. To accommodate the reduced size of  
27 the content display area 126, the images may be reduced or enlarged using standard  
28 Java commands. Alternately, a thumbnail image may be displayed which may be  
29 suggestive of the underlying image.



1           To create the composite image, the user may place a cursor 134 on an image  
2     (e.g., 128) and drag the image to a box (e.g., 136). When the cursor 134 is released,  
3     the 10 PBVB 30 resizes the image 128 to occupy the box 136 using standard Java  
4     commands. The outline of the box 136 disappears and the resized image 138  
5     appears in its place (FIG. 11).

6           Since the image 138 was placed in a first box 136 of the larger box 142, the  
7     PBVB 30 may now assume that the second smaller box 140 is a text box. To select  
8     text to add to the composite image, the user may either click on the box 140 or  
9     select the text tab 114.

10          Selection of the text tab 114 (FIG. 12) causes any text sections 142, 144,  
11     146 associated with the file to be presented in the content area 82. As with images,  
12     the user may place the cursor 134 over a text section and drag the text (e.g., 144) to  
13     a box (e.g., 140). Alternatively, the user may first click on the box 140 and then  
14     simply click on the text section 144 to affect a transfer. As with the images, the  
15     text section 144 may be resized to fit the box of the composite image (FIG. 13).

16          Once text has been dragged to a box the user may edit the text.  
17     Alternatively, the user may edit the text 144 file in the control area 82. The user  
18     may edit the text by selecting the text tool 98 or he may select the text by double-  
19     clicking on the text. Once the text tool has been selected, the user may place the  
20     cursor 134 in the proper location in the text and make any necessary changes.

21          To facilitate entry of information into the composite image 148, the user  
22     may select the zoom-in tool 150 (FIG. 14) and enlarge a particular box 152. In  
23     response, the box 152 (FIG. 15) may be enlarged to occupy the entire right window.  
24     Image and text may be dragged and dropped as above. As each box 152 (FIG. 15)  
25     is completed, the user may return to the template by selecting the zoom-out tool  
26     100.

27          Using the process described above, the entire composite image 148 may be  
28     completed as shown in FIG. 16. Upon completion, the user may select the save  
29     icon.

1 Upon selection of the save icon 88, the composite image 148 may be converted into  
2 an XML document and stored or printed. The XML document may be stored in a  
3 local database 22, transmitted under XML to a website 26 or stored in a remote  
4 database 24.

5 The transfer of data into and out of the PBVB 30 may be accomplished  
6 under any of a number of different formats. The source information (text and  
7 images) provided to the PBVB 30 may be provided under any appropriate mark-up  
8 language (e.g., XML) from any of a number of information conversion utilities  
9 (e.g., DeskNet APS). Images may be further encoded under an appropriate image  
10 format (e.g., gif, jpeg, etc.).

11 Composite images may be encoded by PBVB 30 into a composite image  
12 file 21, 29 under a webpage format for transmission, printing or storage in an  
13 appropriate database under a mark-up language structured to minimize composite  
14 file size, yet maximize file conversion efficiency. Appendix I provides an example  
15 of a document type definition (DTD) that may be used in conjunction with XML as  
16 an encoding mechanism for the composite image.

17 As may be noted from the DTD information of Appendix I, the information  
18 of the composite image maybe encoded under XML based upon position and any of  
19 a number of text and picture elements. The x position (xpos), y position (ypos) and  
20 width and height of each box of the original template of the composite image 148 is  
21 required. Text may be attached to text boxes using conventional XML formatting.  
22 Lines, font or shading may be imparted to the composite image 148 using the DTD  
23 and conventional XML formatting.

24 As may also be noted from the Appendix I the DTD allows images or text to  
25 be identified by a universal resource locator (URL). The utility of using a URL for  
26 an image (or for text) is that the actual image does not necessarily have to be stored  
27 within the composite image file. As such, the composite image file 21, 29 may  
28 simply be transferred in the form of a shell with references to source files. When  
29 the composite file reaches its destination, a browser may simply retrieve the

1 information from the URL and insert it into the proper location of the composite  
2 image 148.

3 As is clear from Appendix I, the composite image file 21, 29 may be  
4 structured without any text or image information within the file. The composite  
5 image file 21, 29, in fact, need only contain a page layout with paths to the image  
6 and text necessary for rendering the composite image into the same visual  
7 appearance presented to the original user during creation of the composite image.

8 Within a destination (e.g., another CPU 16), the composite image 148 may  
9 be reconstructed based upon the composite image file 29 and the DTD 27. To  
10 recreate the composite image 148, a decoding processor 23 (e.g., a browser) may  
11 retrieve the composite image file 29 from a database 24. The decoding processor  
12 23 may reconstruct the template using the composite image file 29 and DTD 27.  
13 Any images not contained within the file 29 may be retrieved using the URL within  
14 the composite image file 29.

15 FIG. 17 depicts an editing screen that may be generated by the PBVB tool  
16 30 for editing composite screens. As with the composing screen of FIG. 6, the  
17 editing screen may include a content area 82 and an image area 84.

18 To facilitate editing of existing (or the generation of entirely new)  
19 composite images, the content area 82 may include tabs allowing selection of  
20 images, text or templates. In the case of the editing screen of FIG. 17, the template  
21 tab 160 may be used to retrieve pre-existing composite images.

22 By selecting the template tag (and entry of an appropriate path identifier), a  
23 number of previously created composite images 162, 164, 166 may be displayed in  
24 the context area 82. To select a composite image 162, 164, 166, the user may place  
25 the cursor over the image and activate the selection switch.

26 In response, the selected composite image 162, 164, 166 may be displayed  
27 in the image area 84. Once an image has been selected, the user may select the  
28 image or text tab (FIG. 18) and edit the selected composite image. Editing may  
29 occur by selecting the text tool and typing in corrections, add new boxes, change  
30 box size (all as described above), or substitute new content. New content may be

1 substituted by dragging new content into the space of existing content. When this  
2 is done, the new content completely replaces the old content.

3 Turning now to the composite images, an example will now be provided  
4 regarding the structure and content of the composite image files 21, 29. Appendix  
5 II may be representative of a CEF file 21, 29 that may be generated by the PBVB  
6 tool 30 from the composite image 168 of FIG. 17.

7 For ease of understanding the content of Appendix II, line numbers have  
8 been added along the left margin of FIG. 17. Reference shall be made to the line  
9 numbers as appropriate to understanding the relationship between CEF files  
10 elements and corresponding elements of the composite image 168.

11 As may be noted, line 1 defines the type of CEF 21, 29 file by version and  
12 the term "encoding="linin1" defines an XML character set. Line 3 provides a  
13 URL to a relevant DTD 27, 31. Line 5 provides a layout delimiter. Line 6 provides  
14 a page number of the composite image and a size of the page in points (e.g., 72  
15 points per inch).

16 Lines 7-18 defines the first element 170 of the composite image 168. As  
17 shown on line 7, the element 170 is a text box. The x and y position (i.e., xpos and  
18 ypos) of the upper left corner of the box lies at 225 and 643.252, respectively. The  
19 width is 365.7266 and the height is 21.2385 points. The box can be edited,  
20 therefore canEdit="true". The term xpos=0, therefore other boxes may overlap the  
21 first element 170. The runaround terms (e.g., rounaroundleft, runaroundright,  
22 runaroundtop, runaroundbottom) specify a border space around the element 170.  
23 Line 12 defines the end of the text properties. Lines 13-15 specify font and style.  
24 Lines 16-17 specifies the actual text to be placed within the element 170. Line 18  
25 defines the end of the text element 170.

26 Lines 20-27 defines the location and content of a picture box 172. As may  
27 be noted, line 26 provides a URL to the actual image information to be inserted into  
28 the picture box 172.

29 Similarly, lines 28-35 defines image element 196 and lines 36-47 defines  
30 text box 182. Line 48 to the end of page 1 and lines 1-6 on page 2 of Appendix II

1 define text box 184. Lines 8-19 defines empty box 178, lines 20-27 defines image  
2 element 174 and lines 28-35 defines picture box 180.

3 Line 36 to the end of page 2 and lines 1-9 of page 3 of Appendix II defines  
4 the location and content of large text box 188. Lines 10-21 defines text box 188,  
5 lines 22-33 defines text box 190, lines 34-45 defines text box 192. Line 42 to the  
6 end of page 2 and lines 1-11 on page 4 defines text box 186.

7 It should be noted that elements 172 and 174 have a lower zpos value than  
8 elements 188. The lower zpos values of elements 172 and 174 identify these  
9 elements as lying on top of (instead of underneath) element 188.

10 A specific embodiment of a method and apparatus for constructing  
11 composite images according to the present invention has been described for the  
12 purpose of illustrating the manner in which the invention is made and used. It  
13 should be understood that the implementation of other variations and modifications  
14 of the invention and its various aspects will be apparent to one skilled in the art, and  
15 that the invention is not limited by the specific embodiments described. Therefore,  
16 it is contemplated to cover the present invention and any and all modifications,  
17 variations, or equivalents that fall within the true spirit and scope of the basic  
18 underlying principles disclosed and claimed herein.

Claims

- 1  
2 1. A method of constructing a composite image within an image space of a  
3 webpage, comprising:  
4 displaying a plurality of source images within a content area of the  
5 webpage;  
6 dividing the image space of the composite image into a plurality of  
7 subspaces;  
8 designating a subspace of the plurality of subspaces for receipt of a selected  
9 image of the plurality of images; and  
10 resizing the selected image to fit the designated subspace of the composite  
11 image.
- 12 2. The method of claim 1 further comprising using a mark-up language to  
13 encode the composite image.
- 14 3. The method of claim 1 further comprising displaying the resized image in  
15 the designated subspace.
- 16 4. The method of claim 3 further comprising displaying a plurality of text  
17 images within the content area.
- 18 5. The method of claim 4 further comprising designating a subspace of the  
19 plurality of subspaces for receipt of a selected text image of the plurality of text  
20 images.
- 21 6. The method of claim 5 further comprising resizing the selected text image  
22 of the plurality of text images to fit the designated space.
- 23 7. The method of claim 6 further comprising displaying the resized text image  
24 in the designated subspace.
- 25 8. The method of claim 6 wherein displaying the plurality of text images  
26 within the content area further comprises editing text within a text image of the  
27 plurality of text images.
- 28 9. The method of claim 7 wherein displaying the text image within the  
29 designated subspace further comprises editing a content of the text image within  
30 the designated space.

- 1     10.     The method of claim 9 further comprising dividing a subspace of the  
2     plurality of subspaces into a text area and an image area.
- 3     11.     The method of claim 10 wherein the designation of the subspace further  
4     comprises dragging a text image of the plurality of text images to the text area of  
5     the divided subspace.
- 6     12.     The method of claim 10 wherein the designation of the subspace further  
7     comprises dragging a source image of the plurality of source images to the image  
8     area of the divided subspace.
- 9     13.     The method of claim 1 further comprising disposing lines around a  
10     subspace of the plurality of subspaces.
- 11    14.     An apparatus to construct a composite image within an image space of a  
12    webpage, comprising:
- 13            means to display a plurality of source images within a content area of the  
14    webpage;
- 15            means to divide the image space of the composite image into a plurality of  
16    subspaces;
- 17            means to designate a subspace of the plurality of subspaces for receipt of a  
18    selected image of the plurality of images; and
- 19            means to resize the selected image to fit the designated subspace of the  
20    composite image.
- 21    15.     The apparatus of claim 14 further comprising means to use a mark-up  
22    language to encode the composite image.
- 23    16.     The apparatus of claim 14 further comprising means to display the resized  
24    image in the designated subspace.
- 25    17.     The apparatus of claim 15 further comprising means to display a plurality  
26    of text images within the content area.
- 27    18.     The apparatus of claim 17 further comprising means to designate a  
28    subspace of the plurality of subspaces for receipt of a selected text image of the  
29    plurality of text images.

- 1 19. The apparatus of claim 18 further comprising means to resize the selected  
2 text image of the plurality of text images to fit the designated space.
- 3 20. The apparatus of claim 19 further comprising means to display the resized  
4 text image in the designated subspace.
- 5 21. The apparatus of claim 19 wherein the means to display the plurality of text  
6 images within the content area further comprises means to edit text within a text  
7 image of the plurality of text images.
- 8 22. The apparatus of claim 20 wherein the means to display the text image  
9 within the designated subspace further comprises means to edit a content of the  
10 text image within the designated space.
- 11 23. The apparatus of claim 22 further comprising means to divide a subspace of  
12 the plurality of subspaces into a text area and an image area.
- 13 24. The apparatus of claim 23 wherein the means to designate the subspace  
14 further comprises means to drag a text image of the plurality of text images to the  
15 text area of the divided subspace.
- 16 25. The apparatus of claim 23 wherein the means to designate the subspace  
17 further comprises means to drag a source image of the plurality of source images to  
18 the image area of the divided subspace.
- 19 26. The apparatus of claim 14 further comprising means to dispose lines around  
20 a subspace of the plurality of subspaces.
- 21 27. An apparatus for constructing a composite image within an image space of  
22 a webpage, comprising:
- 23 a webpage adapted to display a plurality of source images within a content  
24 area of the webpage;
- 25 means to divide the image space of the composite image into a plurality of  
26 subspaces;
- 27 means to designate a subspace of the plurality of subspaces for receipt of a  
28 selected image of the plurality of images; and
- 29 means to resize the selected image to fit the designated subspace of the  
30 composite image.



- 1     28.     The apparatus of claim 27 further comprising means to use a mark-up  
2     language to encode the composite image.
- 3     29.     The apparatus of claim 27 further comprising means to display the resized  
4     image in the designated subspace.
- 5     30.     The apparatus to claim 28 further comprising means to display a plurality  
6     of text images within the content area.
- 7     31.     The apparatus of claim 30 further comprising means to designate a  
8     subspace of the plurality of subspaces for receipt of a selected text image of the  
9     plurality of text images.
- 10    32.     The apparatus of claim 31 further comprising means to resize the selected  
11    text image of the plurality of text images to fit the designated space.
- 12    33.     The apparatus of claim 32 further comprising means to display the resized  
13    text image in the designated subspace.
- 14    34.     The apparatus of claim 32 wherein the means to display the plurality of text  
15    images within the content area further comprises means to edit text within a text  
16    image of the plurality of text images.
- 17    35.     The apparatus of claim 33 wherein the means to display the text image  
18    within the designated subspace further comprises means to edit a content of the  
19    text image within the designated space.
- 20    36.     The apparatus of claim 35 further comprising means to divide a subspace of  
21    the plurality of subspaces into a text area and an image area.
- 22    37.     The apparatus of claim 33 wherein the means to designate the subspace  
23    further comprises means to drag a text image of the plurality of text images to the  
24    text area of the divided subspace.
- 25    38.     The apparatus of claim 36 wherein the means to designate the subspace  
26    further comprises means to drag a source image of the plurality of source images to  
27    the image area of the divided subspace.
- 28    39.     The apparatus of claim 27 further comprising means to dispose lines around  
29    a subspace of, the plurality of subspaces.

- 1     40.     An apparatus to construct a composite image within an image space of a  
2     webpage, comprising:  
3             a processor;  
4             a memory, communicatively connected to the processor;  
5             a program, stored in the memory, including,  
6                 a module to display a plurality of source images within a content  
7     area of the webpage;  
8                 a module to divide the image space of the composite image into a  
9     plurality of subspaces;  
10                 a module to designate a subspace of the plurality of subspaces for  
11     receipt of a selected image of the plurality of images; and  
12                 a module to resize the selected image to fit the designated subspace  
13     of the composite image.
- 14     41.     The apparatus of claim 40 further comprising a module to display the  
15     resized image in the designated subspace.
- 16     42.     The apparatus of claim 40 further comprising a module to use a mark-up  
17     language to encode the composite image.
- 18     43.     The apparatus of claim 42 further comprising a module to display a  
19     plurality of text images within the content area.
- 20     44.     The apparatus of claim 43 further comprising a module to designate a  
21     subspace of the plurality of subspaces for receipt of a selected text image of the  
22     plurality of text images.
- 23     45.     The apparatus of claim 44 further comprising a module to resize the  
24     selected text image of the plurality of text images to fit the designated space.
- 25     46.     The apparatus of claim 45 wherein the module to display the plurality of  
26     text images within the content area further comprises a module to edit text within a  
27     text image of the plurality of text images.
- 28     47.     The apparatus of claim 45 further comprising a module to display the  
29     resized text image in the designated subspace.

1 48. The apparatus of claim 47 wherein the module to display the text image  
2 within the designated subspace further comprises a module to edit a content of the  
3 text image within the designated space.

4 49. The apparatus of claim 48 further comprising a module to divide a  
5 subspace of the plurality of subspaces into a text area and an image area.

6 50. The apparatus of claim 49 wherein the module to designate the subspace  
7 further comprises a module to drag a text image of the plurality of text images to  
8 the text area of the divided subspace.

9 51. The apparatus of claim 49 wherein the module to designate the subspace  
10 further comprises a module to drag a source image of the plurality of source  
11 images to the image area of the divided subspace.

12 52. The apparatus of claim 40 further comprising a module to dispose lines  
13 around a subspace of the plurality of subspaces.

14 53. An computer program to construct a composite image within an image  
15 space of a webpage, the program stored on a computer readable medium, the  
16 program, comprising:

17 a module to display a plurality of source images within a content area of the  
18 webpage;

19 a module to divide the image space of the composite image into a plurality  
20 of subspaces;

21 a module to designate a subspace of the plurality of subspaces for receipt of  
22 a selected image of the plurality of images; and

23 a module to resize the selected image to fit the designated subspace of the  
24 composite image.

25 54. The medium of claim 53 further comprising a module to display the resized  
26 image in the designated subspace.

27 55. The medium of claim 53 further comprising a module to use a mark-up  
28 language to encode the composite image.

29 56. The medium of claim 55 further comprising a module to display a plurality  
30 of text images within the content area.

1 57. The medium of claim 56 further comprising a module to designate a  
2 subspace of the plurality of subspaces for receipt of a selected text image of the  
3 plurality of text images.

4 58. The medium of claim 57 further comprising a module to resize the selected  
5 text image of the plurality of text images to fit the designated space.

6 59. The medium of claim 58 wherein the module to display the plurality of text  
7 images within the content area further comprises a module to edit text within a text  
8 image of the plurality of text images.

9 60. The medium of claim 58 further comprising a module to display the resized  
10 text image in the designated subspace.

11 61. The medium of claim 60 wherein the module to display the text image  
12 within the designated subspace further comprises a module to edit a content of the  
13 text image within the designated space.

14 62. The medium of claim 61 further comprising a module to divide a subspace  
15 of the plurality of subspaces into a text area and an image area.

16 63. The medium of claim 62 wherein the module to designate the subspace  
17 further comprises a module to drag a text image of the plurality of text images to  
18 the text area of the divided subspace.

19 64. The medium of claim 62 wherein the module to designate the subspace  
20 further comprises a module to drag a source image of the plurality of source  
21 images to the image area of the divided subspace.

22 65. The medium of claim 53 further comprising a module to dispose lines  
23 around a subspace of the plurality of subspaces.

1/17

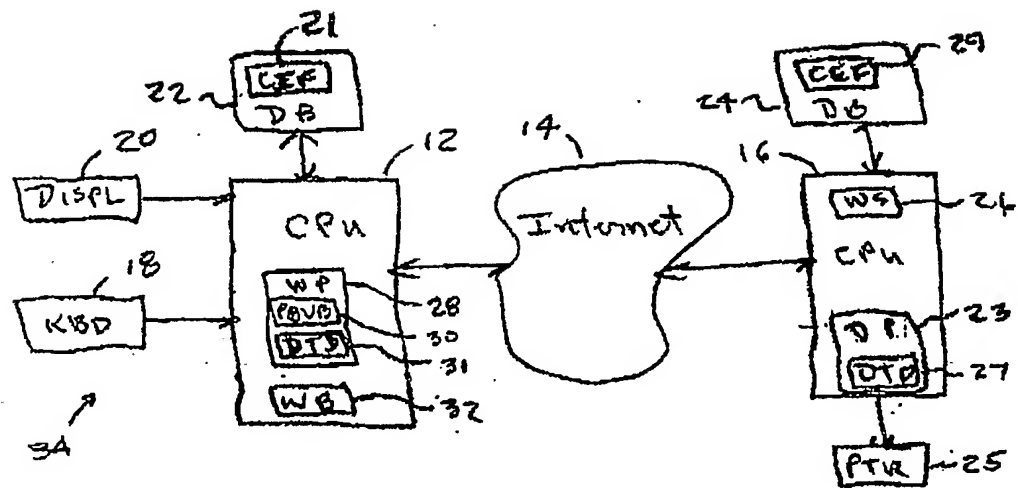
10

FIG. 1

2/17

The image is a screenshot of a web browser window. The address bar shows the URL "http://www.desktopinc.com/software/". The page header includes a logo with the text "Automated Publishing" and the word "software" in a large, stylized font. The main content area is titled "LOGIN". Below the title, there are two input fields: "Username:" with the value "kpa" and "Password:" with a masked value "\*\*\*\*\*". To the right of the username field is a handwritten number "42", and to the right of the password field is a handwritten number "44". Below the password field is a "LOGIN" button with a handwritten number "46" next to it.

http://www.desktopinc.com/software/

Automated Publishing

software

LOGIN

Username: kpa 42

Password: \*\*\*\*\* 44

LOGIN 46

40  
FIG. 2

3/17

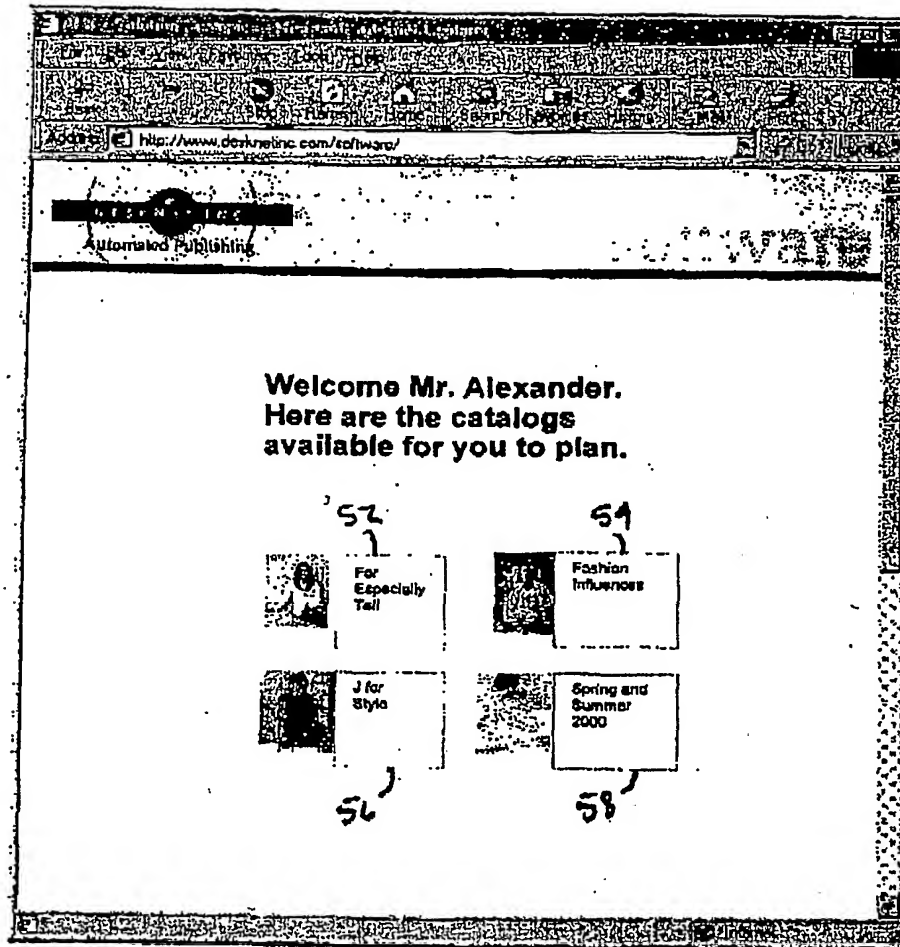
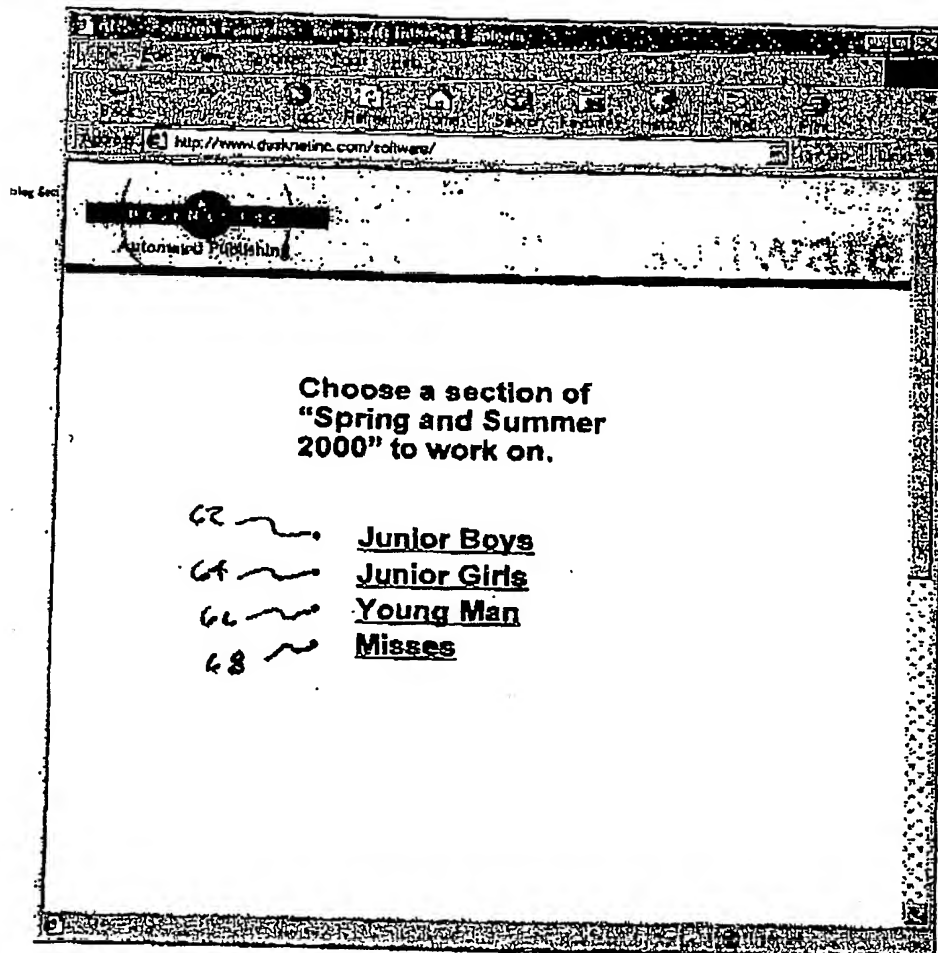
50

FIG. 3

4/17



60  
FIG. 4



5/17

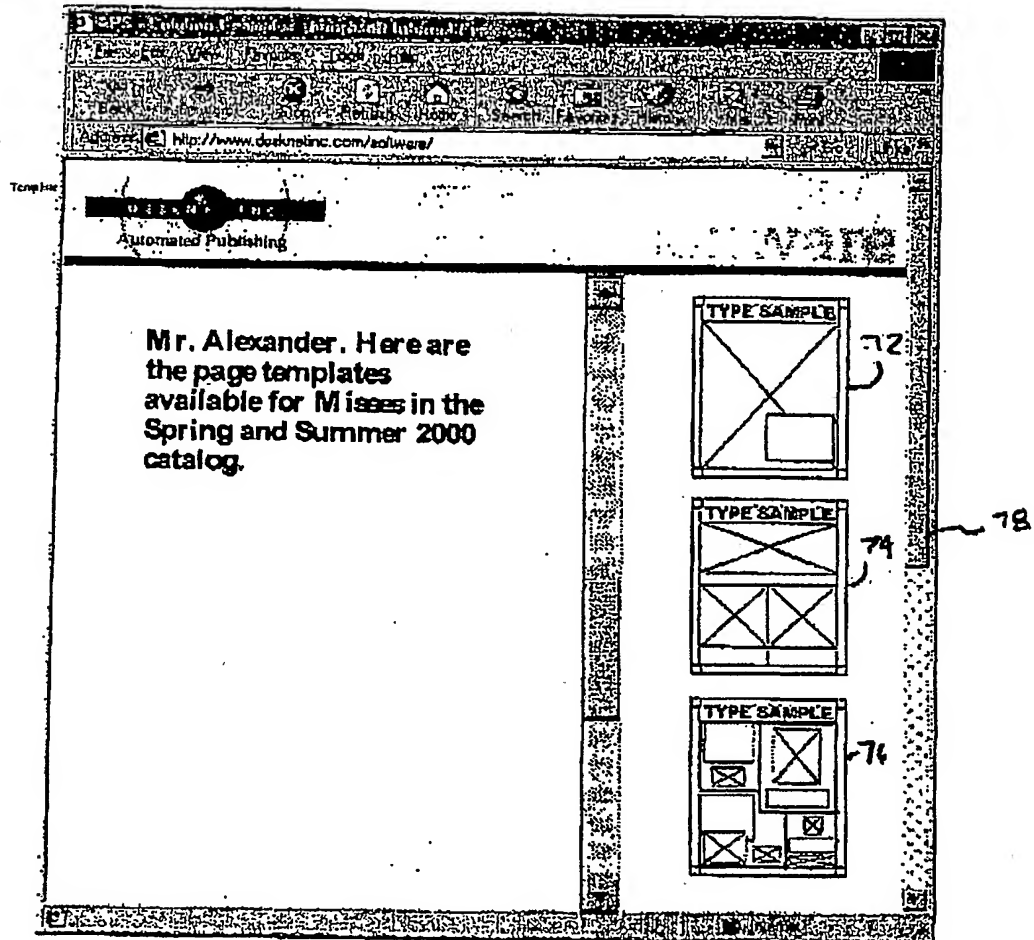
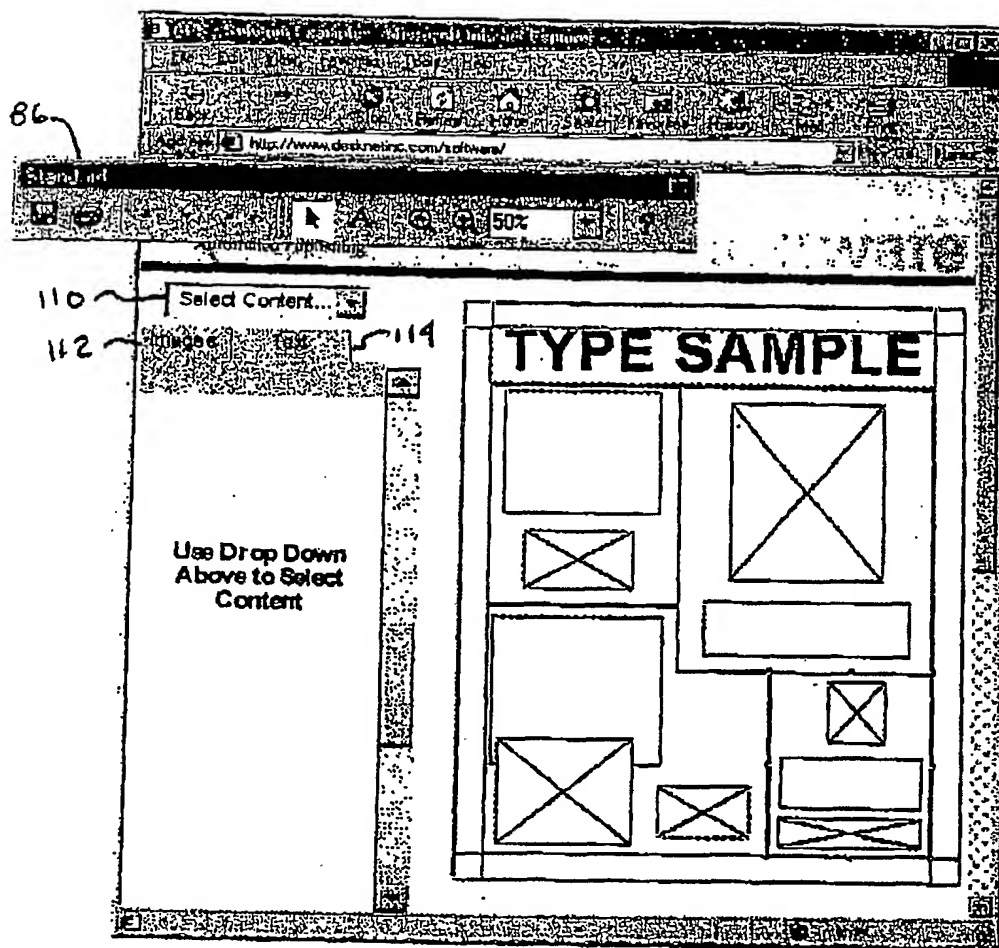
70

FIG. 5

6/17



82 81 84

80  
FIG. 6

7/17

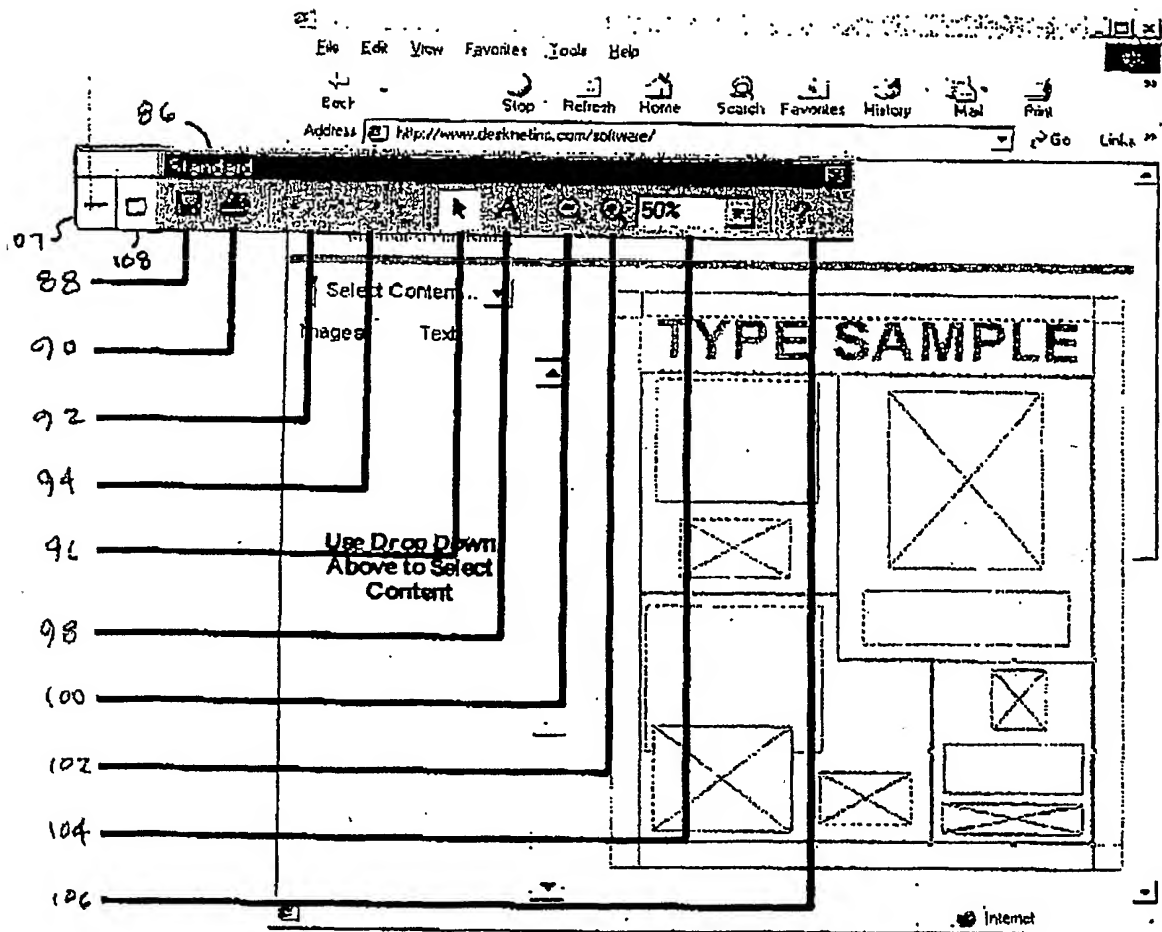


FIG. 7

8/17

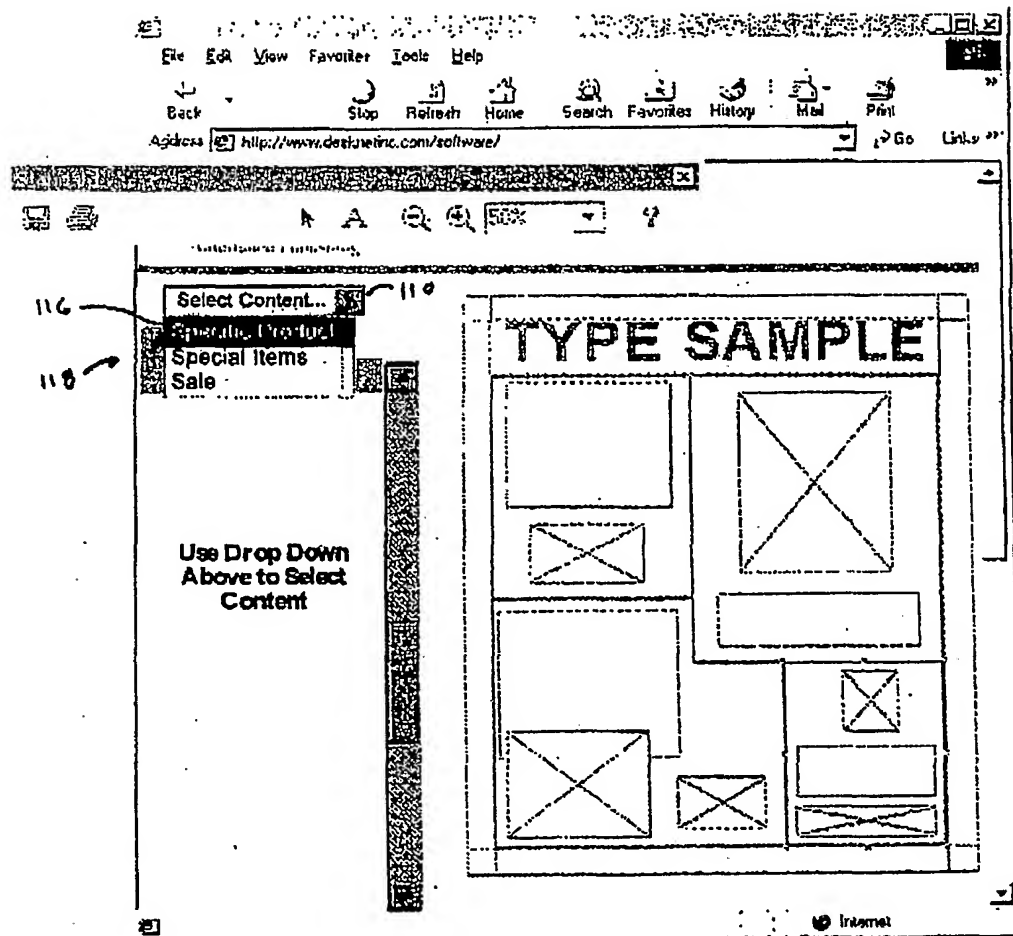


FIG. 8

9/17

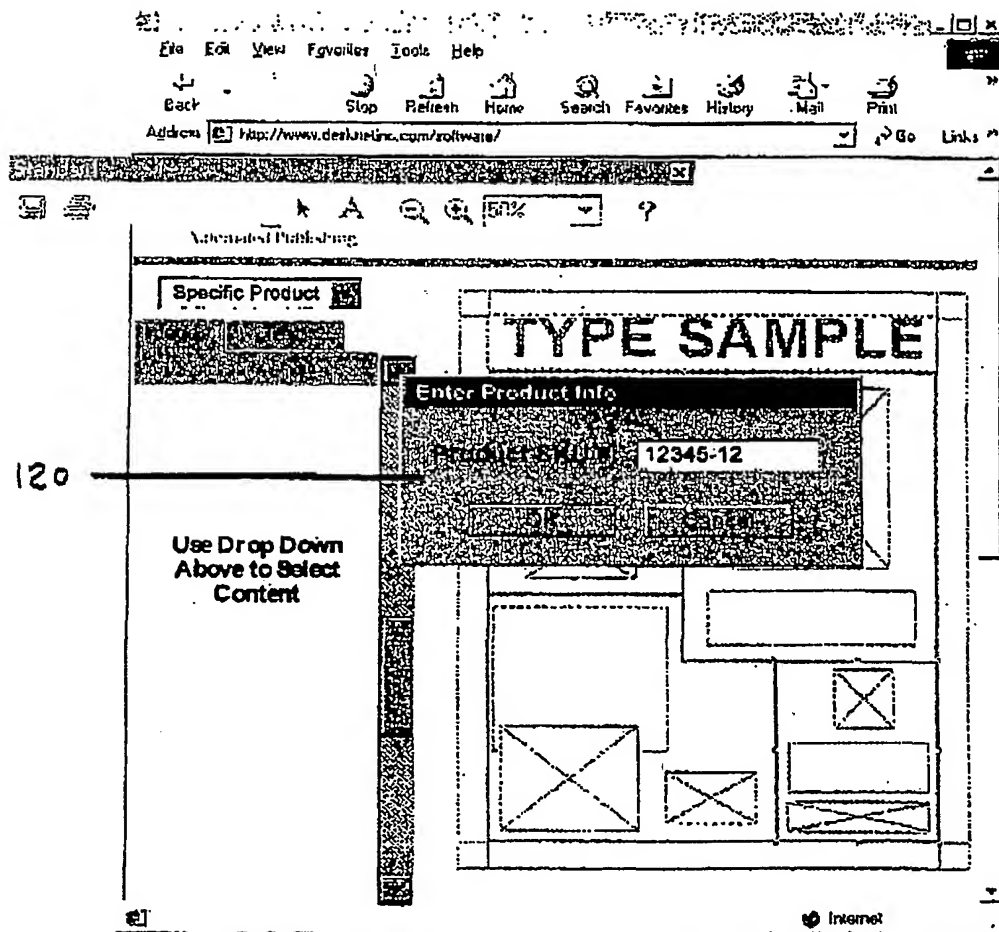


FIG. 9

10/17

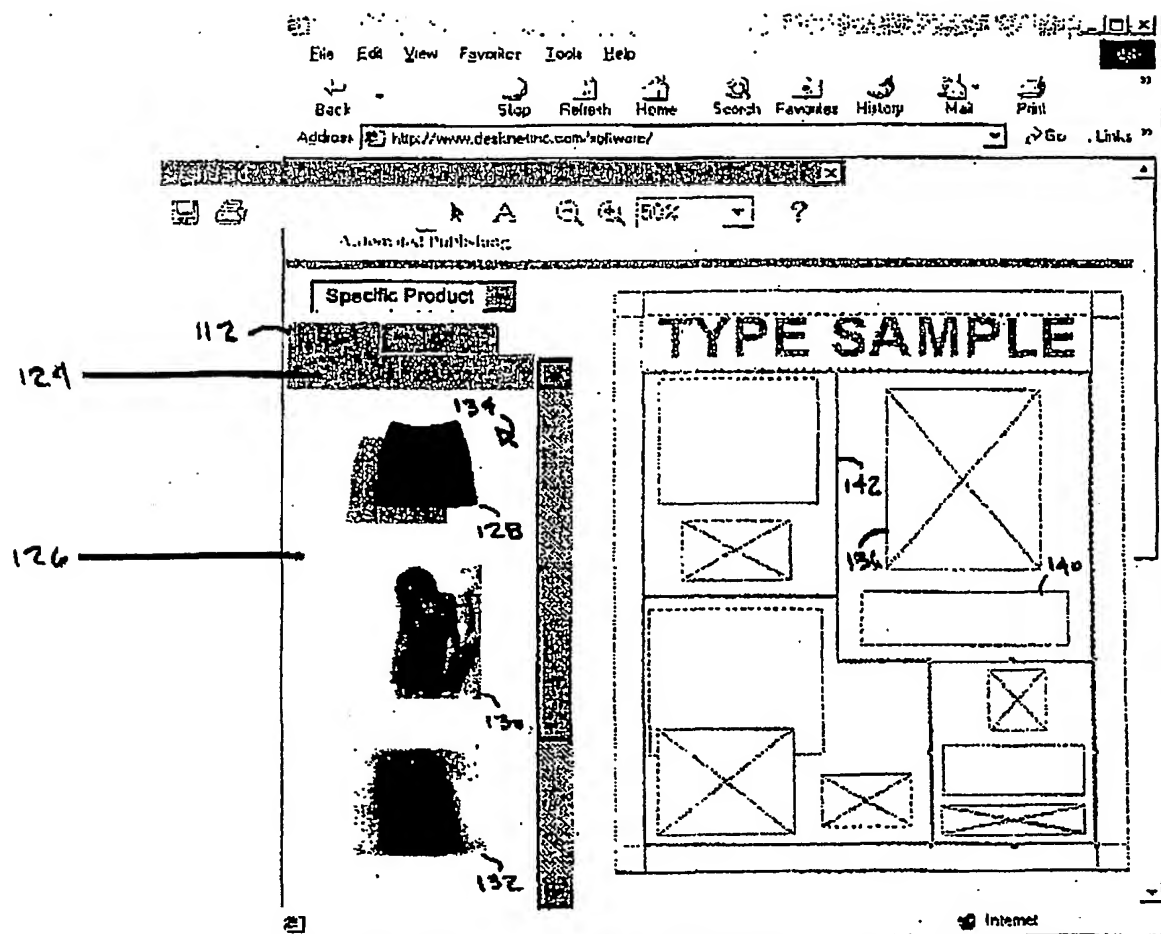


FIG. 10

11/17

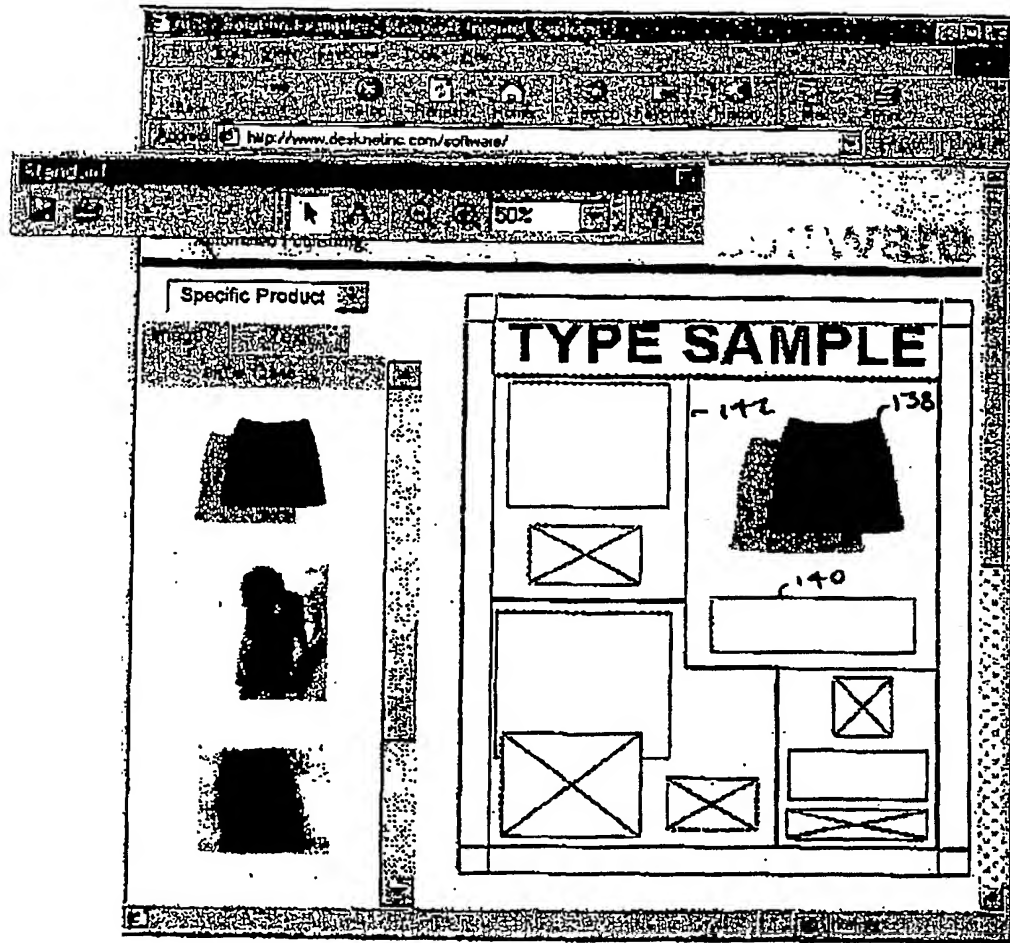


FIG. 11

12/17

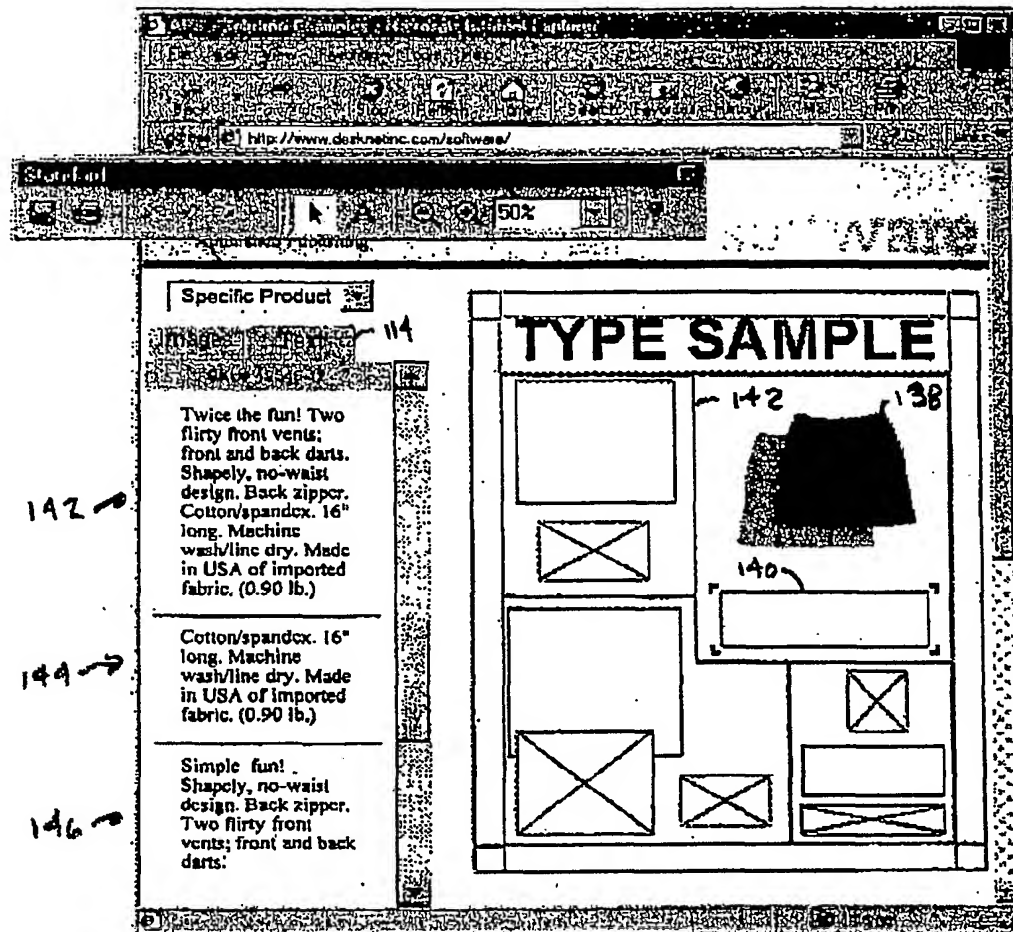


FIG. 12



13/17

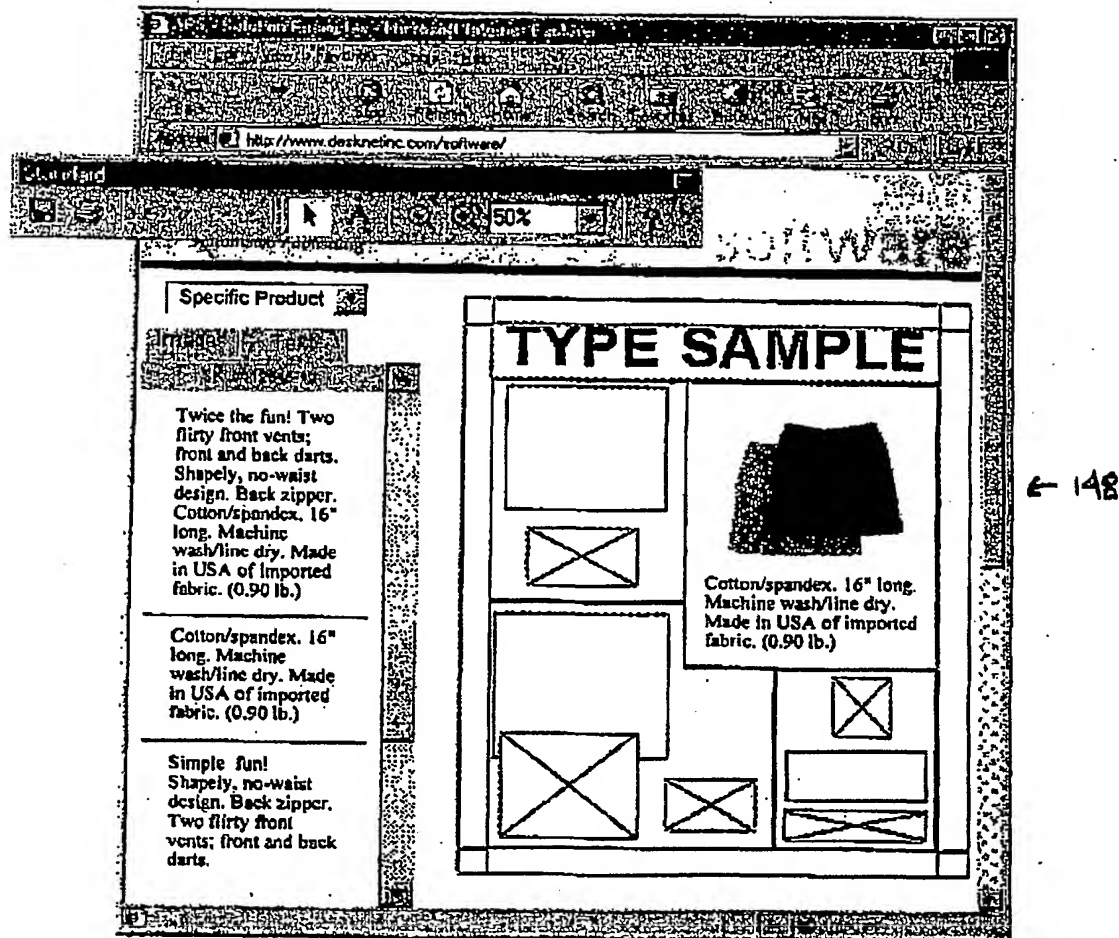


FIG. 13

14/17

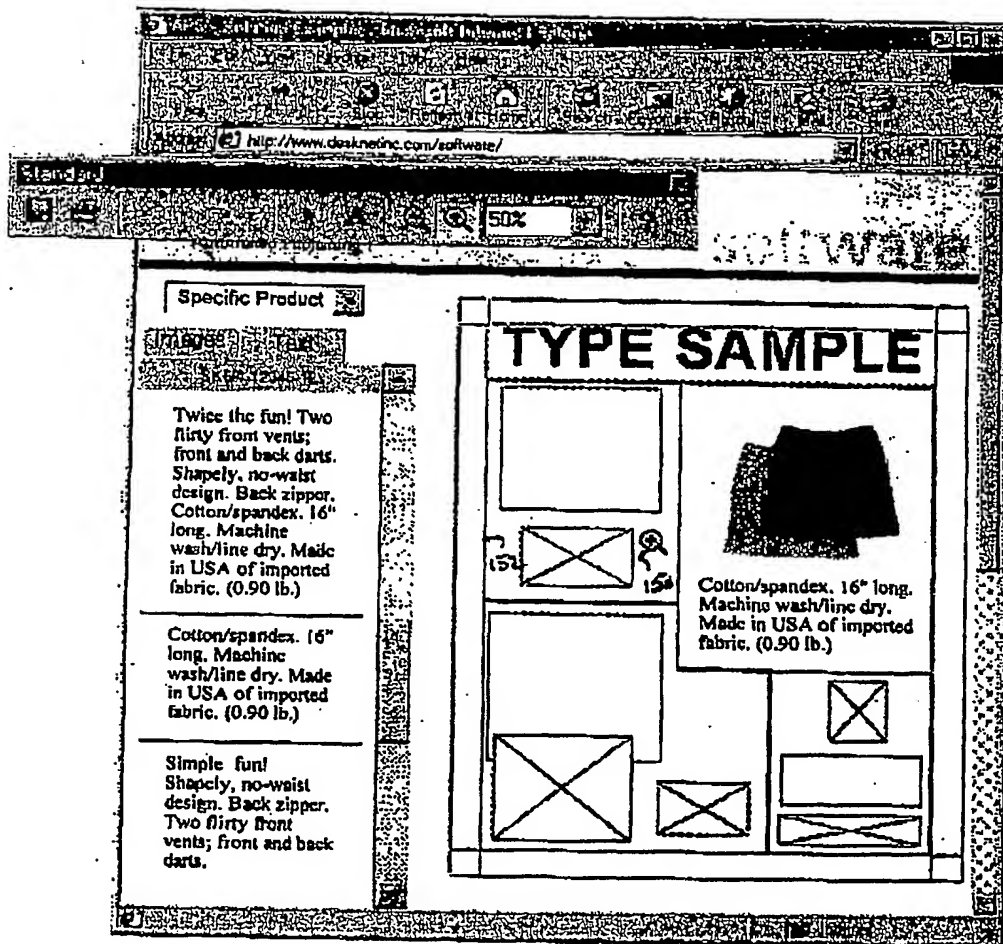


FIG. 14

15/17

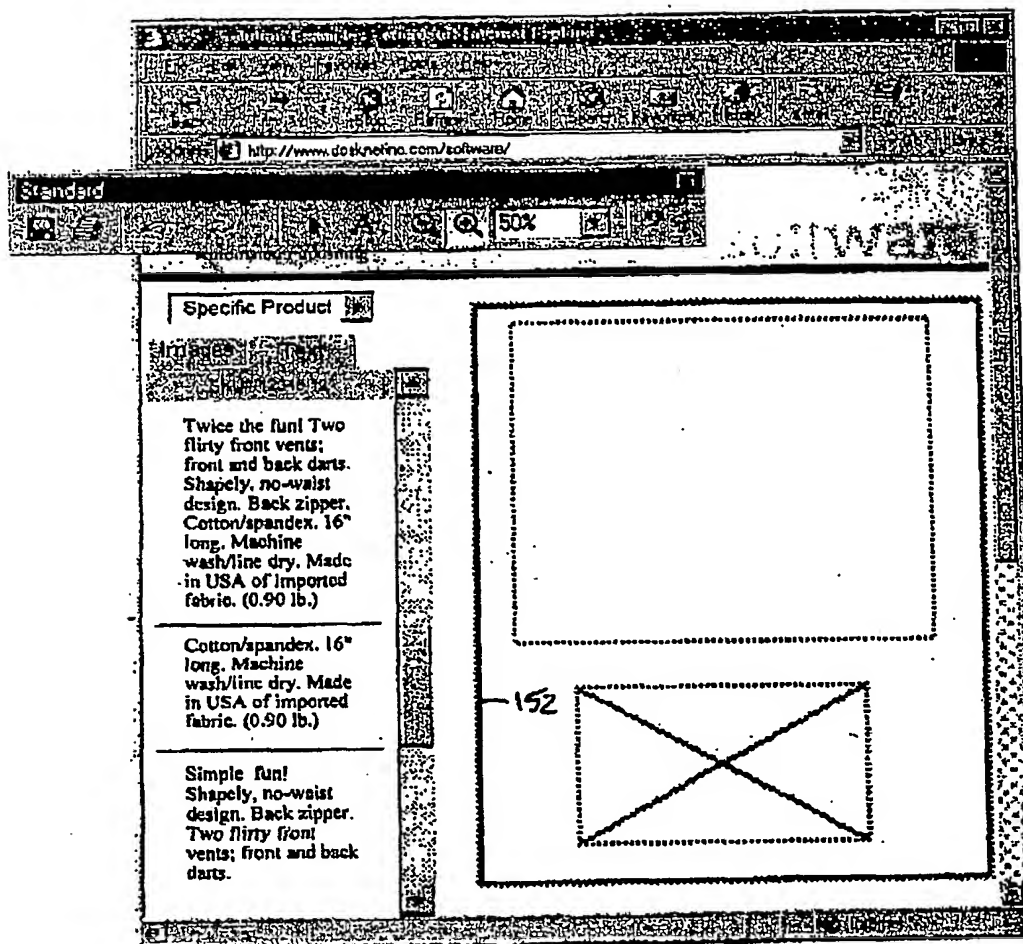


FIG. 15

16/17

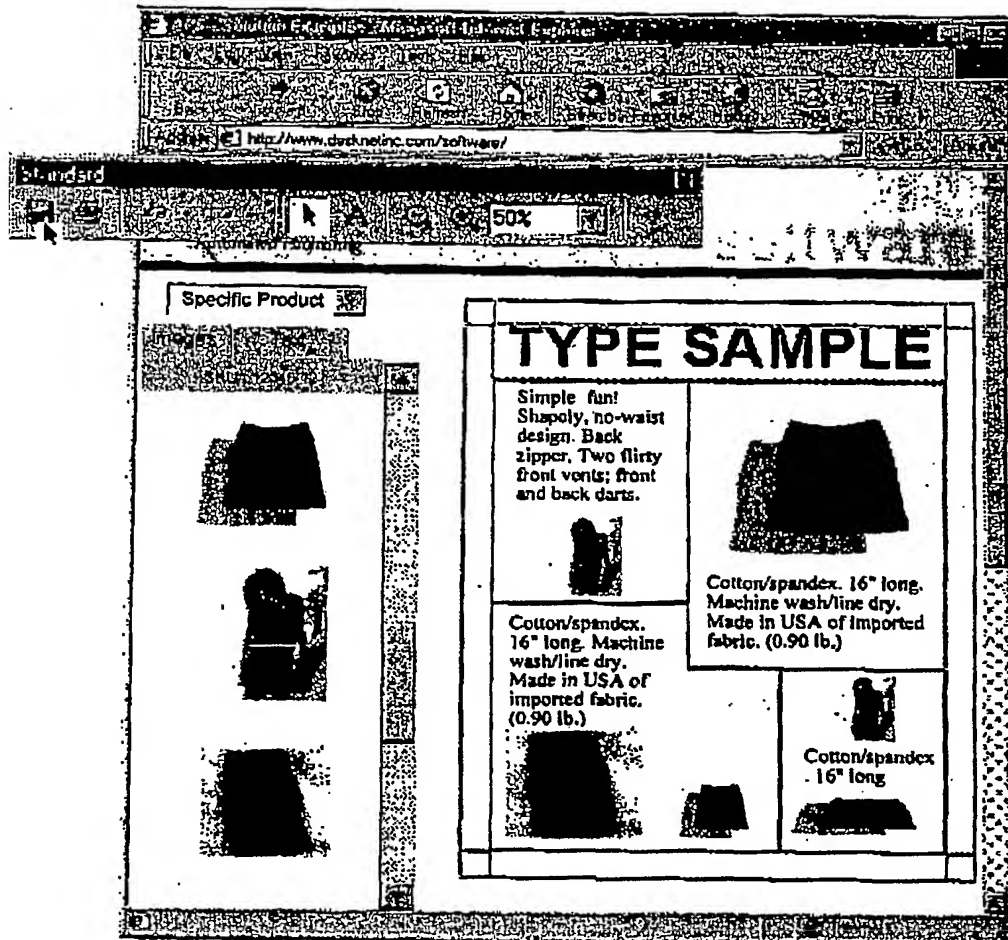


FIG. 16

17/17

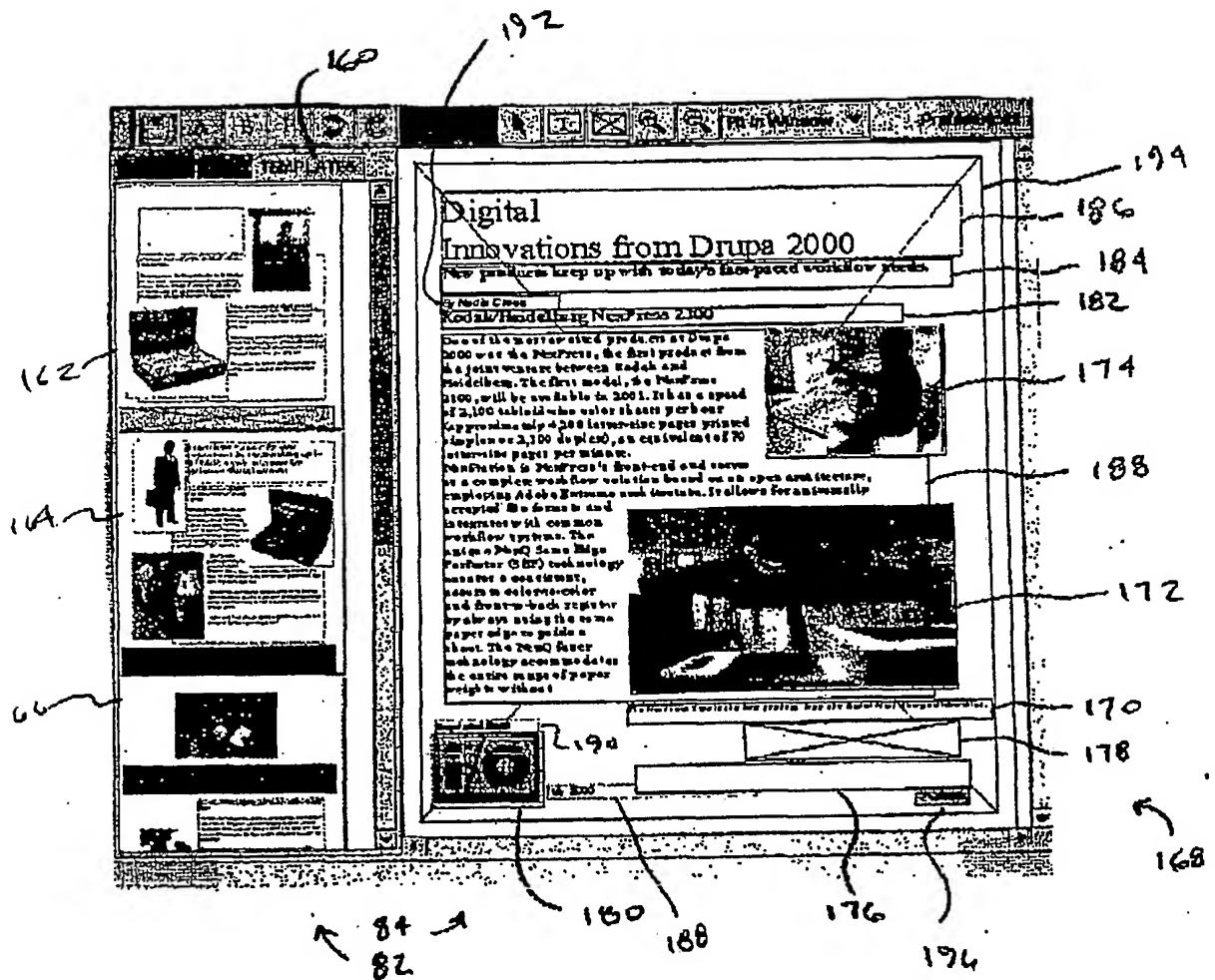


FIG. 17

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
16 May 2002 (16.05.2002)

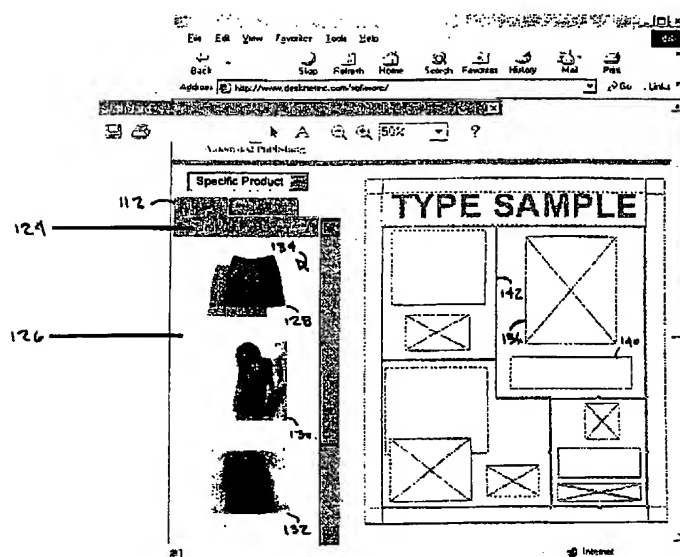
PCT

(10) International Publication Number  
**WO 02/037939 A3**

- (51) International Patent Classification<sup>7</sup>: **G06F 3/00**
- (21) International Application Number: PCT/US01/50942
- (22) International Filing Date: 19 October 2001 (19.10.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/241,661 20 October 2000 (20.10.2000) US  
09/932,656 17 August 2001 (17.08.2001) US  
09/932,517 17 August 2001 (17.08.2001) US
- (71) Applicant: **DESKNET, INC.** [US/US]; 83 Maiden Lane, New York, NY 10038 (US).
- (72) Inventors: **FITZSIMONS, Edgar, Michael**; 207 East 74th Street, New York, NY 10021 (US). **FITZSIMONS, Brian, G.**; 15 Fox Hill Lane, Short Hills, NJ 07078 (US). **LANGENBACH, Erik, Richard**; 2 Juengst Road, Croton Falls, NY 10519 (US).
- (74) Agent: **HUGHES, Christopher, A.**; Morgan & Finnegan, LLP, 345 Park Avenue, New York, New York 10154 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— with international search report

[Continued on next page]

(54) Title: METHOD OF CONSTRUCTING A COMPOSITE IMAGE WITHIN AN IMAGE SPACE OF A WEBPAGE



(57) Abstract: A method and apparatus are provided for constructing a composite image (84) within an image space of a webpage. The method includes displaying a plurality of source images (128, 130, 132) within a content area (126) of the webpage and dividing the image space of the composite image into a plurality of subspaces (142). The method further includes designating a subspace of the plurality of subspaces for receipt of a selected image of the plurality of images and resizing the selected image to fit the designated subspace of the composite image.



**(88) Date of publication of the international search report:**  
12 September 2002

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/50942

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 3/00

US CL : 345/804,838,760; 707/513,501

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 345/804,838,854,760; 707/513,517,501

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
BRS

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,845,299 A (ARORA ET AL.) 01 December 1998 (01.12.1998) abstract.	1,14,27,40,53
Y,T	US 6,275,829 B1 (ANGIULO ET AL.) 14 August 2001 (14.08.2001) abstract.	3, 16, 29, 41, 54
Y	US 6,097,389 A (MORRIS ET AL.) 01 August 2000 (01.08.2000) abstract; fig. 12F.	1,14,27,40,53

☐

Further documents are listed in the continuation of Box C.

☐

See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

04 April 2, 2002

Date of mailing of the international search report

08 MAY 2002

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Sy D. Luu

Telephone No. (703) 305-0409



CORRECTED VERSION

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
16 May 2002 (16.05.2002)

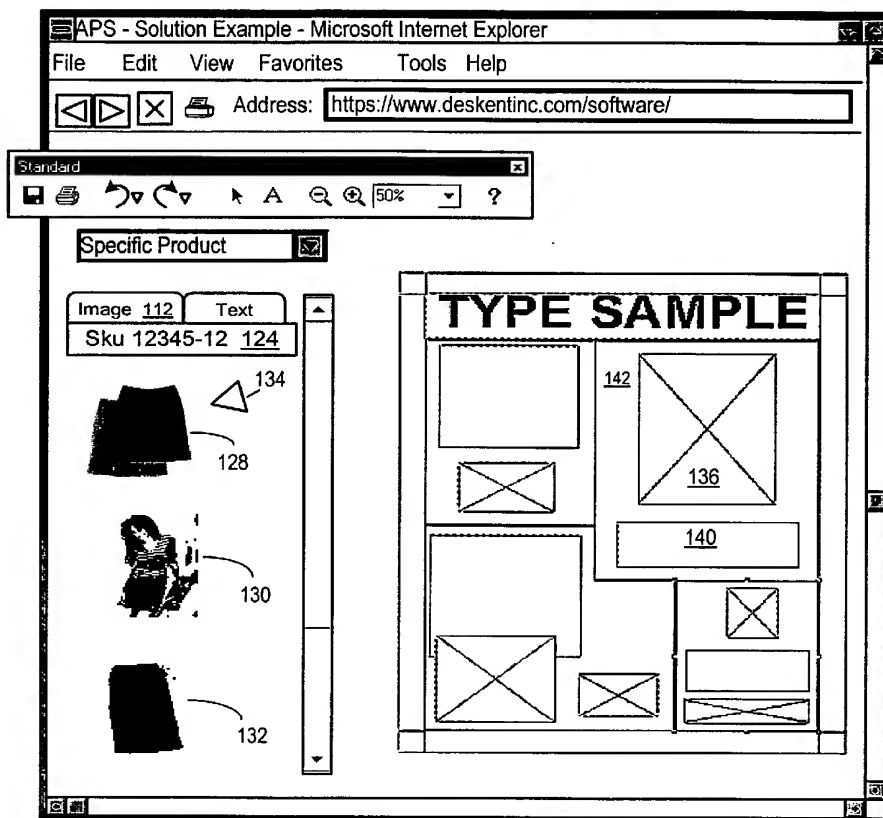
PCT

(10) International Publication Number  
**WO 02/037939 A3**

- (51) International Patent Classification<sup>7</sup>: **G06F 3/00**
- (21) International Application Number: PCT/US01/50942
- (22) International Filing Date: 19 October 2001 (19.10.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/241,661 20 October 2000 (20.10.2000) US  
09/932,656 17 August 2001 (17.08.2001) US  
09/932,517 17 August 2001 (17.08.2001) US
- (71) Applicant: **DESKNET, INC.** [US/US]; 83 Maiden Lane, New York, NY 10038 (US).
- (72) Inventors: **FITZSIMONS, Edgar, Michael**; 207 East 74th Street, New York, NY 10021 (US). **FITZSIMONS, Brian, G.**; 15 Fox Hill Lane, Short Hills, NJ 07078 (US). **LANGENBACH, Erik, Richard**; 2 Juengst Road, Croton Falls, NY 10519 (US).
- (74) Agent: **HUGHES, Christopher, A.**; Morgan & Finnegan, LLP, 345 Park Avenue, New York, New York 10154 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

[Continued on next page]

(54) Title: METHOD OF CONSTRUCTING A COMPOSITE IMAGE WITHIN AN IMAGE SPACE OF A WEBPAGE



(57) Abstract: A method and apparatus are provided for constructing a composite image (84) within an image space of a webpage. The method includes displaying a plurality of source images (128, 130, 132) within a content area (126) of the webpage and dividing the image space of the composite image into a plurality of subspaces (142). The method further includes designating a subspace of the plurality of subspaces for receipt of a selected image of the plurality of images and resizing the selected image to fit the designated subspace of the composite image.

WO 02/037939 A3



**(84) Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

**(88) Date of publication of the international search report:**  
12 September 2002

**(48) Date of publication of this corrected version:**  
24 April 2003

**(15) Information about Correction:**  
see PCT Gazette No. 17/2003 of 24 April 2003, Section II

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

1 METHOD OF CONSTRUCTING A COMPOSITE IMAGE WITHIN AN IMAGE SPACE OF A WEBPAGE.

2  
3 FIELD

4 The field of the invention relates to the Internet and more specifically to  
5 method of constructing and transmitting images over the Internet.

6  
7 BACKGROUND

8 Computer networks, in general, and the Internet, in specific, have become a  
9 vast resource of information. With the aid of a personal computer (PC) and web  
10 browser, a user may connect and retrieve information on virtually any subject  
11 matter.

12 Using the browser, a user can locate and access any of a number of search  
13 engines through the Internet. From the search engines, a webpage may be  
14 downloaded for the entry of search terms. Through the proper entry of search  
15 terms, any range of images and text may be located and downloaded to a user.

16 Once downloaded to a user, the user may review the information on-line or  
17 print it out. Alternatively, the user may store the information to disk.

18 While the information downloaded from the Internet is useful, it typically  
19 downloaded under a hypertext transport protocol (HTTP). While HTTP is useful  
20 for storing and printing, it is not particularly easy to manipulate and combine files.  
21 Other protocols, such as XML, are available, but have not been developed into  
22 useful applications. Accordingly, a need exists for applications which allow for the  
23 easy manipulation and combining of web based documents.

24  
25 SUMMARY

26 A method and apparatus are provided for constructing a composite image  
27 within an image space of webpage. The method includes displaying plurality of  
28 source images within a content area of the webpage and dividing the image space of  
29 the composite image into a plurality of subspaces. The method further includes  
30 designating a subspace of the plurality of subspaces for receipt of a selected image

1 of the plurality of images and resizing the selected image to fit the designated  
2 subspace of the composite image.

#### 4 BRIEF DESCRIPTION OF THE DRAWINGS

5 FIG. 1 is a block diagram of a system for constructing a composite image in  
6 accordance with an illustrated embodiment of the invention;

7 FIG. 2 is login screen that may be used by the system of FIG. 1;

8 FIG. 3 is a subject matter selection screen that may be used by the system of  
9 FIG. 1;

10 FIG. 4 depicts a further subject matter selection screen that may be used by  
11 the system of FIG. 1;

12 FIG. 5 depicts a template selection screen that maybe used by the system of  
13 FIG. 1;

14 FIG. 6 depicts a selected template and content area that may be used by the  
15 system of FIG. 1;

16 FIG. 7 depicts a floating toolbar that may be used by the system of FIG. 1;

17 FIG. 8 depicts details of content selection that may be used by the system of  
18 FIG. 1;

19 FIG. 9 depicts further details of content selection that may be used by the  
20 system of FIG. 1;

21 FIG. 10 depicts content that may be used in the composite image by the  
22 system of FIG. 1;

23 FIG. 11 depicts details of construction of the composite image constructed  
24 by the system of FIG. 1;

25 FIG. 12 depicts details of image transfer to the composite image constructed  
26 by the system of FIG. 1;

27 FIG. 13 depicts details the composite image constructed by the system of  
28 FIG. 1;

29 FIG. 14 depicts details of text transfer to the composite image constructed  
30 by the system of FIG. 1;

1           FIG. 15 depicts details of creation of the composite image constructed by  
2   the system of FIG. 1;

3           FIG. 16 depicts. a composite image constructed by the system of FIG. 1;  
4   and

5           FIG. 17 depicts a screen for editing composite images that may be used by  
6   the system of FIG. 1.

7           Appendix I depicts a DTD that may be used by the system of FIG. 1.

8           Appendix II depicts a composite image file that may be generated from the  
9   composite image of FIG. 17.

## DETAILED DESCRIPTION

FIG. 1 is a block diagram of a system 10, shown generally under an illustrated embodiment of the invention, for collecting, composing and transmitting images through the Internet. As used herein, an image includes: an illustration; photo; text; multimedia components such as, but not limited to, video, hypertext, etc.; and/or the like. A composite image includes more than one image.

Included within the system 10 may be an operators station 34. The operators station 34 may include a central processing unit (CPU) 12 with an appropriate web browser 32, a display 20 and keyboard 18. The operators station 34 may also include a database 22 which may function as a source and also a destination of images.

The operators station 34 may include a connection to the Internet 14. Also coupled to the Internet 14 may be one or more servers (e.g., CPUs) 16, including websites 26 and databases 24. The servers 16 may also function as both a source and destination of images as described in more detail below.

Under the illustrated embodiment, an operator (not shown) working through the operators station 34 may access a website 26 and download a webpage 28 containing the software constructs (e.g., a page building via browser (PBVB) tool 30) for processing composite images. The PBVB tool 30 is a configurable tool, which brings page layout functionality to the Internet. Communication between the operators station 34 and website 26 for downloading of the PBVB tool 30 (and subsequent communication) may occur through the standard HTTP port 80 of the operators station 34.

As described in more detail below, the PBVB tool 30 provides a facility and an intuitive interface for placing content within a template. Since it may be retrieved from a website, it is inherently simple to access from remote locations and easy to install. Further, since the PBVB tool 30 may be downloaded from a common website of an organization, the organization may more easily enforce business rules through the use of embedded templates.

1 In general, the PBVB 30 may be written as a Java applet and run inside the  
2 browser 32. Providing the PBVB 30 as a Java applet allows PBVB 30 to be easily  
3 used in conjunction with Microsoft Internet Explorer or Netscape Navigator  
4 browsers on either PC or Macintosh platforms.

5 Further, to facilitate operation of the PBVB 30, data may be delivered to  
6 and routed from the PBVB 30 under a common format (e.g., XML). The use of  
7 XML simplifies image manipulation and composite image construction by  
8 providing a format which is Internet compatible and which is easily adapted to both  
9 text and image processing.

10 The preparation of composite images may be useful for any of a number of  
11 uses. For example, the operator may use the workstation 34 to retrieve text and  
12 graphical representations from any of a number of Internet or local sources and  
13 combine such information into virtually any form of instructional or sales literature  
14 (e.g., catalogs).

15 Following is a description of a process that may be used for the creation of a  
16 catalog. While the description below is directed to a specific type of composite  
17 image, it should be understood that the described process may be extended to  
18 virtually any situation.

19 In order to perform construction of a composite image, the operator (after  
20 accessing the website 26 and downloading webpage 28 and PBVB 30) may first be  
21 presented with a sign-on screen 40 (FIG. 2). The operator may enter his user name  
22 in a first box 42 and password in a second box 44, followed by activation of a login  
23 softkey.

24 Following sign-in to the system, the website 26 may download a webpage  
25 50 (FIG. 3) offering a set of file choices 52, 54, 56, 58 from which the composite  
26 images will be created. In the example of the catalog, the operator may activate the  
27 "Spring and Summer" option 58.

28 In response, a further webpage 60 may be downloaded from the website  
29 offering subdivisions 62, 64, 66, 68 of the file selection 58. As a further example  
30 of the catalog creation, the operator may select "Misses" 68.

1 In response, the website 26 may download a template selection webpage 70.  
2 Within the template selection webpage 70, a number of possible templates 72, 74,  
3 76 may be provided, any one of which may be used for creation of a composite  
4 image. A scroll bar 78 may be provided to access other choices of templates. In  
5 the example provided, the operator may select the lower template 76.

6 The templates may be divided into a number of boxes. Larger boxes may  
7 have smaller boxes inside. The smaller boxes may be text boxes and the larger  
8 boxes may be image boxes. For convenience text boxes may be shown with  
9 diagonal lines. However, this is for convenience only, in the sense that images may  
10 later be placed in text boxes and text placed in image boxes.

11 Upon selection of a template 76, the PBVB 30 may divide the display 80  
12 into a composing screen including first and second windows 82, 84 (FIG. 6). The  
13 first window 82 may be a content area for selecting source content for the  
14 composite image and the second window 84 displays the template within which the  
15 composite image is to be created. A floating toolbar 86 is also provided to facilitate  
16 creation of the composite image.

17 FIG. 7 provides further detail regarding the floating toolbar 86. As shown,  
18 a first icon 88 of a disk, allows the user to save the composite image. A second  
19 icon 90 allows the user to print the composite image. Third and fourth curved  
20 arrows 92, 94 allows the user to UNDO and REDO changes. A selection tool 96 is  
21 provided to select specific boxes of the template for insertion of content into the  
22 composite image. A text tool 98 is provided to edit text in specific boxes. Zoom-in  
23 and zoom-out boxes 100, 102 and a zoom-to-percentage box 104 are provided to  
24 enlarge or reduce portions of the composite image. A help box 106 is also  
25 provided. Finally, a box select tool 108 and line selection tool 107 are provided to  
26 insert additional boxes and lines into the template.

27 A user may click on the box selection tool 107 with a cursor 134 and then  
28 click on a desired location within the selected template. The location of the cursor  
29 134 when the key on the mouse was actuated becomes the upper left corner of a



1 new box. The user may enlarge the box by holding the actuating key on a mouse  
2 controller and dragging the new box to whatever size needed.

3 Similarly, the line tool 107 may be selected by placing the cursor 134 on the  
4 line selection icon 107 and clicking. To create lines, the user may first click on a  
5 starting position, move the cursor 134 to an end position and click a second time.

6 The content area 82 functions as a means to access source material for  
7 inclusion into the composite image. Within the content area 82, a first pull-down  
8 menu 110 may specify a data path to a particular data source (e.g., within a local  
9 directory, related database 22, Internet source 24, etc.). Once a source has been  
10 identified, first and second tabs 112, 114 may be used to select either text or images  
11 within the source file.

12 In the catalog example, a user may specify a specific pathname as a data  
13 source within a remote DB 24 (FIG. 1). Files identified by the pathname may be  
14 displayed in the pulldown menu 118 (FIG. 8) of content select 110. In the catalog  
15 example, the file names may be "Specific Product", "Special Items" and "Sale".  
16 The user may select "Specific Product". Some choices may require additional path  
17 information.

18 For example, selection of the directory name "Specific Product" may not be  
19 a complete path to a file. In this case, a window 120 (FIG. 9) may be displayed  
20 requesting a specific file name. The user enters an identifier in a file identifier box  
21 122 and activates the OK button. The information entered through the file  
22 identifier box 122 may be easily customized via a configuration file.

23 Upon identification of a file, the contents of the file may be displayed in the  
24 content area 82. Since the image tab 112 is highlighted in the content area 82,  
25 images 128, 130, 132 within the file 11SKU#; 12345-1211 are retrieved and  
26 displayed within the content display area 126. To accommodate the reduced size of  
27 the content display area 126, the images may be reduced or enlarged using standard  
28 Java commands. Alternately, a thumbnail image may be displayed which may be  
29 suggestive of the underlying image.

1 To create the composite image, the user may place a cursor 134 on an image  
2 (e.g., 128) and drag the image to a box (e.g., 136). When the cursor 134 is released,  
3 the 10 PBVB 30 resizes the image 128 to occupy the box 136 using standard Java  
4 commands. The outline of the box 136 disappears and the resized image 138  
5 appears in its place (FIG. 11).

6 Since the image 138 was placed in a first box 136 of the larger box 142, the  
7 PBVB 30 may now assume that the second smaller box 140 is a text box. To select  
8 text to add to the composite image, the user may either click on the box 140 or  
9 select the text tab 114.

10 Selection of the text tab 114 (FIG. 12) causes any text sections 142, 144,  
11 146 associated with the file to be presented in the content area 82. As with images,  
12 the user may place the cursor 134 over a text section and drag the text (e.g., 144) to  
13 a box (e.g., 140). Alternatively, the user may first click on the box 140 and then  
14 simply click on the text section 144 to affect a transfer. As with the images, the  
15 text section 144 may be resized to fit the box of the composite image (FIG. 13).

16 Once text has been dragged to a box the user may edit the text.  
17 Alternatively, the user may edit the text 144 file in the control area 82. The user  
18 may edit the text by selecting the text tool 98 or he may select the text by double-  
19 clicking on the text. Once the text tool has been selected, the user may place the  
20 cursor 134 in the proper location in the text and make any necessary changes.

21 To facilitate entry of information into the composite image 148, the user  
22 may select the zoom-in tool 150 (FIG. 14) and enlarge a particular box 152. In  
23 response, the box 152 (FIG. 15) may be enlarged to occupy the entire right window.  
24 Image and text may be dragged and dropped as above. As each box 152 (FIG. 15)  
25 is completed, the user may return to the template by selecting the zoom-out tool  
26 100.

27 Using the process described above, the entire composite image 148 may be  
28 completed as shown in FIG. 16. Upon completion, the user may select the save  
29 icon.

1 Upon selection of the save icon 88, the composite image 148 may be converted into  
2 an XML document and stored or printed. The XML document may be stored in a  
3 local database 22, transmitted under XML to a website 26 or stored in a remote  
4 database 24.

5 The transfer of data into and out of the PBVB 30 may be accomplished  
6 under any of a number of different formats. The source information (text and  
7 images) provided to the PBVB 30 may be provided under any appropriate mark-up  
8 language (e.g., XML) from any of a number of information conversion utilities  
9 (e.g., DeskNet APS). Images may be further encoded under an appropriate image  
10 format (e.g., gif, jpeg, etc.).

11 Composite images may be encoded by PBVB 30 into a composite image  
12 file 21, 29 under a webpage format for transmission, printing or storage in an  
13 appropriate database under a mark-up language structured to minimize composite  
14 file size, yet maximize file conversion efficiency. Appendix I provides an example  
15 of a document type definition (DTD) that may be used in conjunction with XML as  
16 an encoding mechanism for the composite image.

17 As may be noted from the DTD information of Appendix I, the information  
18 of the composite image maybe encoded under XML based upon position and any of  
19 a number of text and picture elements. The x position (xpos), y position (ypos) and  
20 width and height of each box of the original template of the composite image 148 is  
21 required. Text may be attached to text boxes using conventional XML formatting.  
22 Lines, font or shading may be imparted to the composite image 148 using the DTD  
23 and conventional XML formatting.

24 As may also be noted from the Appendix I the DTD allows images or text to  
25 be identified by a universal resource locator (URL). The utility of using a URL for  
26 an image (or for text) is that the actual image does not necessarily have to be stored  
27 within the composite image file. As such, the composite image file 21, 29 may  
28 simply be transferred in the form of a shell with references to source files. When  
29 the composite file reaches its destination, a browser may simply retrieve the

1 information from the URL and insert it into the proper location of the composite  
2 image 148.

3 As is clear from Appendix I, the composite image file 21, 29 may be  
4 structured without any text or image information within the file. The composite  
5 image file 21, 29, in fact, need only contain a page layout with paths to the image  
6 and text necessary for rendering the composite image into the same visual  
7 appearance presented to the original user during creation of the composite image.

8 Within a destination (e.g., another CPU 16), the composite image 148 may  
9 be reconstructed based upon the composite image file 29 and the DTD 27. To  
10 recreate the composite image 148, a decoding processor 23 (e.g., a browser) may  
11 retrieve the composite image file 29 from a database 24. The decoding processor  
12 23 may reconstruct the template using the composite image file 29 and DTD 27.  
13 Any images not contained within the file 29 may be retrieved using the URL within  
14 the composite image file 29.

15 FIG. 17 depicts an editing screen that may be generated by the PBVB tool  
16 30 for editing composite screens. As with the composing screen of FIG. 6, the  
17 editing screen may include a content area 82 and an image area 84.

18 To facilitate editing of existing (or the generation of entirely new)  
19 composite images, the content area 82 may include tabs allowing selection of  
20 images, text or templates. In the case of the editing screen of FIG. 17, the template  
21 tab 160 may be used to retrieve pre-existing composite images.

22 By selecting the template tag (and entry of an appropriate path identifier), a  
23 number of previously created composite images 162, 164, 166 may be displayed in  
24 the context area 82. To select a composite image 162, 164, 166, the user may place  
25 the cursor over the image and activate the selection switch.

26 In response, the selected composite image 162, 164, 166 may be displayed  
27 in the image area 84. Once an image has been selected, the user may select the  
28 image or text tab (FIG. 18) and edit the selected composite image. Editing may  
29 occur by selecting the text tool and typing in corrections, add new boxes, change  
30 box size (all as described above), or substitute new content. New content may be

1 substituted by dragging new content into the space of existing content. When this  
2 is done, the new content completely replaces the old content.

3 Turning now to the composite images, an example will now be provided  
4 regarding the structure and content of the composite image files 21, 29. Appendix  
5 II may be representative of a CEF file 21, 29 that may be generated by the PBVB  
6 tool 30 from the composite image 168 of FIG. 17.

7 For ease of understanding the content of Appendix II, line numbers have  
8 been added along the left margin of FIG. 17. Reference shall be made to the line  
9 numbers as appropriate to understanding the relationship between CEF files  
10 elements and corresponding elements of the composite image 168.

11 As may be noted, line 1 defines the type of CEF 21, 29 file by version and  
12 the term "encoding="linin1" defines an XML character set. Line 3 provides a  
13 URL to a relevant DTD 27, 31. Line 5 provides a layout delimiter. Line 6 provides  
14 a page number of the composite image and a size of the page in points (e.g., 72  
15 points per inch).

16 Lines 7-18 defines the first element 170 of the composite image 168. As  
17 shown on line 7, the element 170 is a text box. The x and y position (i.e., xpos and  
18 ypos) of the upper left corner of the box lies at 225 and 643.252, respectively. The  
19 width is 365.7266 and the height is 21.2385 points. The box can be edited,  
20 therefore canEdit="true". The term xpos=0, therefore other boxes may overlap the  
21 first element 170. The runaround terms (e.g., rounaroundleft, runaroundright,  
22 runaroundtop, runaroundbottom) specify a border space around the element 170.  
23 Line 12 defines the end of the text properties. Lines 13-15 specify font and style.  
24 Lines 16-17 specifies the actual text to be placed within the element 170. Line 18  
25 defines the end of the text element 170.

26 Lines 20-27 defines the location and content of a picture box 172. As may  
27 be noted, line 26 provides a URL to the actual image information to be inserted into  
28 the picture box 172.

29 Similarly, lines 28-35 defines image element 196 and lines 36-47 defines  
30 text box 182. Line 48 to the end of page 1 and lines 1-6 on page 2 of Appendix II

1 define text box 184. Lines 8-19 defines empty box 178, lines 20-27 defines image  
2 element 174 and lines 28-35 defines picture box 180.

3 Line 36 to the end of page 2 and lines 1-9 of page 3 of Appendix II defines  
4 the location and content of large text box 188. Lines 10-21 defines text box 188,  
5 lines 22-33 defines text box 190, lines 34-45 defines text box 192. Line 42 to the  
6 end of page 2 and lines 1-11 on page 4 defines text box 186.

7 It should be noted that elements 172 and 174 have a lower zpos value than  
8 elements 188. The lower zpos values of elements 172 and 174 identify these  
9 elements as lying on top of (instead of underneath) element 188.

10 A specific embodiment of a method and apparatus for constructing  
11 composite images according to the present invention has been described for the  
12 purpose of illustrating the manner in which the invention is made and used. It  
13 should be understood that the implementation of other variations and modifications  
14 of the invention and its various aspects will be apparent to one skilled in the art, and  
15 that the invention is not limited by the specific embodiments described. Therefore,  
16 it is contemplated to cover the present invention and any and all modifications,  
17 variations, or equivalents that fall within the true spirit and scope of the basic  
18 underlying principles disclosed and claimed herein.

Claims

- 1  
2 1. A method of constructing a composite image within an image space of a  
3 webpage, comprising:  
4 displaying a plurality of source images within a content area of the  
5 webpage;  
6 dividing the image space of the composite image into a plurality of  
7 subspaces;  
8 designating a subspace of the plurality of subspaces for receipt of a selected  
9 image of the plurality of images; and  
10 resizing the selected image to fit the designated subspace of the composite  
11 image.
- 12 2. The method of claim 1 further comprising using a mark-up language to  
13 encode the composite image.
- 14 3. The method of claim 1 further comprising displaying the resized image in  
15 the designated subspace.
- 16 4. The method of claim 3 further comprising displaying a plurality of text  
17 images within the content area.
- 18 5. The method of claim 4 further comprising designating a subspace of the  
19 plurality of subspaces for receipt of a selected text image of the plurality of text  
20 images.
- 21 6. The method of claim 5 further comprising resizing the selected text image  
22 of the plurality of text images to fit the designated space.
- 23 7. The method of claim 6 further comprising displaying the resized text image  
24 in the designated subspace.
- 25 8. The method of claim 6 wherein displaying the plurality of text images  
26 within the content area further comprises editing text within a text image of the  
27 plurality of text images.
- 28 9. The method of claim 7 wherein displaying the text image within the  
29 designated subspace further comprises editing a content of the text image within  
30 the designated space.

- 1     10.     The method of claim 9 further comprising dividing a subspace of the  
2     plurality of subspaces into a text area and an image area.
- 3     11.     The method of claim 10 wherein the designation of the subspace further  
4     comprises dragging a text image of the plurality of text images to the text area of  
5     the divided subspace.
- 6     12.     The method of claim 10 wherein the designation of the subspace further  
7     comprises dragging a source image of the plurality of source images to the image  
8     area of the divided subspace.
- 9     13.     The method of claim 1 further comprising disposing lines around a  
10     subspace of the plurality of subspaces.
- 11     14.     An apparatus to construct a composite image within an image space of a  
12     webpage, comprising:
- 13             means to display a plurality of source images within a content area of the  
14     webpage;
- 15             means to divide the image space of the composite image into a plurality of  
16     subspaces;
- 17             means to designate a subspace of the plurality of subspaces for receipt of a  
18     selected image of the plurality of images; and
- 19             means to resize the selected image to fit the designated subspace of the  
20     composite image.
- 21     15.     The apparatus of claim 14 further comprising means to use a mark-up  
22     language to encode the composite image.
- 23     16.     The apparatus of claim 14 further comprising means to display the resized  
24     image in the designated subspace.
- 25     17.     The apparatus of claim 15 further comprising means to display a plurality  
26     of text images within the content area.
- 27     18.     The apparatus of claim 17 further comprising means to designate a  
28     subspace of the plurality of subspaces for receipt of a selected text image of the  
29     plurality of text images.



- 1 19. The apparatus of claim 18 further comprising means to resize the selected  
2 text image of the plurality of text images to fit the designated space.
- 3 20. The apparatus of claim 19 further comprising means to display the resized  
4 text image in the designated subspace.
- 5 21. The apparatus of claim 19 wherein the means to display the plurality of text  
6 images within the content area further comprises means to edit text within a text  
7 image of the plurality of text images.
- 8 22. The apparatus of claim 20 wherein the means to display the text image  
9 within the designated subspace further comprises means to edit a content of the  
10 text image within the designated space.
- 11 23. The apparatus of claim 22 further comprising means to divide a subspace of  
12 the plurality of subspaces into a text area and an image area.
- 13 24. The apparatus of claim 23 wherein the means to designate the subspace  
14 further comprises means to drag a text image of the plurality of text images to the  
15 text area of the divided subspace.
- 16 25. The apparatus of claim 23 wherein the means to designate the subspace  
17 further comprises means to drag a source image of the plurality of source images to  
18 the image area of the divided subspace.
- 19 26. The apparatus of claim 14 further comprising means to dispose lines around  
20 a subspace of the plurality of subspaces.
- 21 27. An apparatus for constructing a composite image within an image space of  
22 a webpage, comprising:  
23 a webpage adapted to display a plurality of source images within a content  
24 area of the webpage;  
25 means to divide the image space of the composite image into a plurality of  
26 subspaces;  
27 means to designate a subspace of the plurality of subspaces for receipt of a  
28 selected image of the plurality of images; and  
29 means to resize the selected image to fit the designated subspace of the  
30 composite image.

- 1 28. The apparatus of claim 27 further comprising means to use a mark-up  
2 language to encode the composite image.
- 3 29. The apparatus of claim 27 further comprising means to display the resized  
4 image in the designated subspace.
- 5 30. The apparatus to claim 28 further comprising means to display a plurality  
6 of text images within the content area.
- 7 31. The apparatus of claim 30 further comprising means to designate a  
8 subspace of the plurality of subspaces for receipt of a selected text image of the  
9 plurality of text images.
- 10 32. The apparatus of claim 31 further comprising means to resize the selected  
11 text image of the plurality of text images to fit the designated space.
- 12 33. The apparatus of claim 32 further comprising means to display the resized  
13 text image in the designated subspace.
- 14 34. The apparatus of claim 32 wherein the means to display the plurality of text  
15 images within the content area further comprises means to edit text within a text  
16 image of the plurality of text images.
- 17 35. The apparatus of claim 33 wherein the means to display the text image  
18 within the designated subspace further comprises means to edit a content of the  
19 text image within the designated space.
- 20 36. The apparatus of claim 35 further comprising means to divide a subspace of  
21 the plurality of subspaces into a text area and an image area.
- 22 37. The apparatus of claim 33 wherein the means to designate the subspace  
23 further comprises means to drag a text image of the plurality of text images to the  
24 text area of the divided subspace.
- 25 38. The apparatus of claim 36 wherein the means to designate the subspace  
26 further comprises means to drag a source image of the plurality of source images to  
27 the image area of the divided subspace.
- 28 39. The apparatus of claim 27 further comprising means to dispose lines around  
29 a subspace of, the plurality of subspaces.

- 1     40.     An apparatus to construct a composite image within an image space of a  
2     webpage, comprising:  
3             a processor;  
4             a memory, communicatively connected to the processor;  
5             a program, stored in the memory, including,  
6                 a module to display a plurality of source images within a content  
7     area of the webpage;  
8                 a module to divide the image space of the composite image into a  
9     plurality of subspaces;  
10                a module to designate a subspace of the plurality of subspaces for  
11     receipt of a selected image of the plurality of images; and  
12                a module to resize the selected image to fit the designated subspace  
13     of the composite image.
- 14     41.     The apparatus of claim 40 further comprising a module to display the  
15     resized image in the designated subspace.
- 16     42.     The apparatus of claim 40 further comprising a module to use a mark-up  
17     language to encode the composite image.
- 18     43.     The apparatus of claim 42 further comprising a module to display a  
19     plurality of text images within the content area.
- 20     44.     The apparatus of claim 43 further comprising a module to designate a  
21     subspace of the plurality of subspaces for receipt of a selected text image of the  
22     plurality of text images.
- 23     45.     The apparatus of claim 44 further comprising a module to resize the  
24     selected text image of the plurality of text images to fit the designated space.
- 25     46.     The apparatus of claim 45 wherein the module to display the plurality of  
26     text images within the content area further comprises a module to edit text within a  
27     text image of the plurality of text images.
- 28     47.     The apparatus of claim 45 further comprising a module to display the  
29     resized text image in the designated subspace.

1 48. The apparatus of claim 47 wherein the module to display the text image  
2 within the designated subspace further comprises a module to edit a content of the  
3 text image within the designated space.

4 49. The apparatus of claim 48 further comprising a module to divide a  
5 subspace of the plurality of subspaces into a text area and an image area.

6 50. The apparatus of claim 49 wherein the module to designate the subspace  
7 further comprises a module to drag a text image of the plurality of text images to  
8 the text area of the divided subspace.

9 51. The apparatus of claim 49 wherein the module to designate the subspace  
10 further comprises a module to drag a source image of the plurality of source  
11 images to the image area of the divided subspace.

12 52. The apparatus of claim 40 further comprising a module to dispose lines  
13 around a subspace of the plurality of subspaces.

14 53. An computer program to construct a composite image within an image  
15 space of a webpage, the program stored on a computer readable medium, the  
16 program, comprising:

17 a module to display a plurality of source images within a content area of the  
18 webpage;

19 a module to divide the image space of the composite image into a plurality  
20 of subspaces;

21 a module to designate a subspace of the plurality of subspaces for receipt of  
22 a selected image of the plurality of images; and

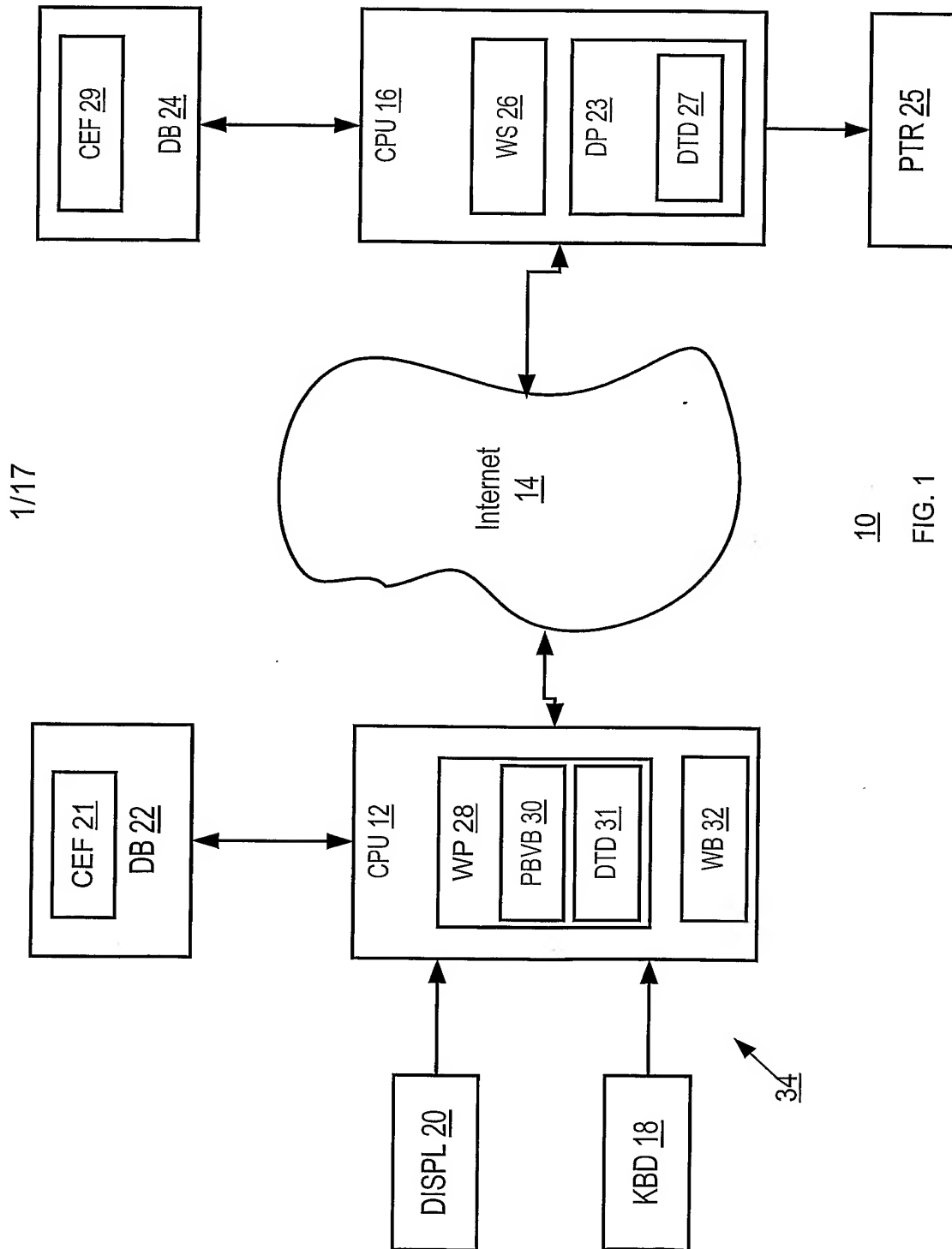
23 a module to resize the selected image to fit the designated subspace of the  
24 composite image.

25 54. The medium of claim 53 further comprising a module to display the resized  
26 image in the designated subspace.

27 55. The medium of claim 53 further comprising a module to use a mark-up  
28 language to encode the composite image.

29 56. The medium of claim 55 further comprising a module to display a plurality  
30 of text images within the content area.

- 1 57. The medium of claim 56 further comprising a module to designate a  
2 subspace of the plurality of subspaces for receipt of a selected text image of the  
3 plurality of text images.
- 4 58. The medium of claim 57 further comprising a module to resize the selected  
5 text image of the plurality of text images to fit the designated space.
- 6 59. The medium of claim 58 wherein the module to display the plurality of text  
7 images within the content area further comprises a module to edit text within a text  
8 image of the plurality of text images.
- 9 60. The medium of claim 58 further comprising a module to display the resized  
10 text image in the designated subspace.
- 11 61. The medium of claim 60 wherein the module to display the text image  
12 within the designated subspace further comprises a module to edit a content of the  
13 text image within the designated space.
- 14 62. The medium of claim 61 further comprising a module to divide a subspace  
15 of the plurality of subspaces into a text area and an image area.
- 16 63. The medium of claim 62 wherein the module to designate the subspace  
17 further comprises a module to drag a text image of the plurality of text images to  
18 the text area of the divided subspace.
- 19 64. The medium of claim 62 wherein the module to designate the subspace  
20 further comprises a module to drag a source image of the plurality of source  
21 images to the image area of the divided subspace.
- 22 65. The medium of claim 53 further comprising a module to dispose lines  
23 around a subspace of the plurality of subspaces.



10  
FIG. 1

The image is a screenshot of a Microsoft Internet Explorer browser window. The title bar reads "APS - Solution Example - Microsoft Internet Explorer". The menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The address bar shows the URL "https://www.deskentinc.com/software/". The main content area displays a login form with the heading "LOGIN". Below the heading, there are two input fields: "Username:" followed by a text box containing the number "42", and "Password:" followed by a text box containing the number "44". Below these fields is a button labeled "LOGIN 46". The browser window has standard navigation buttons (back, forward, stop, home) and a status bar at the bottom.

APS - Solution Example - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: <https://www.deskentinc.com/software/>

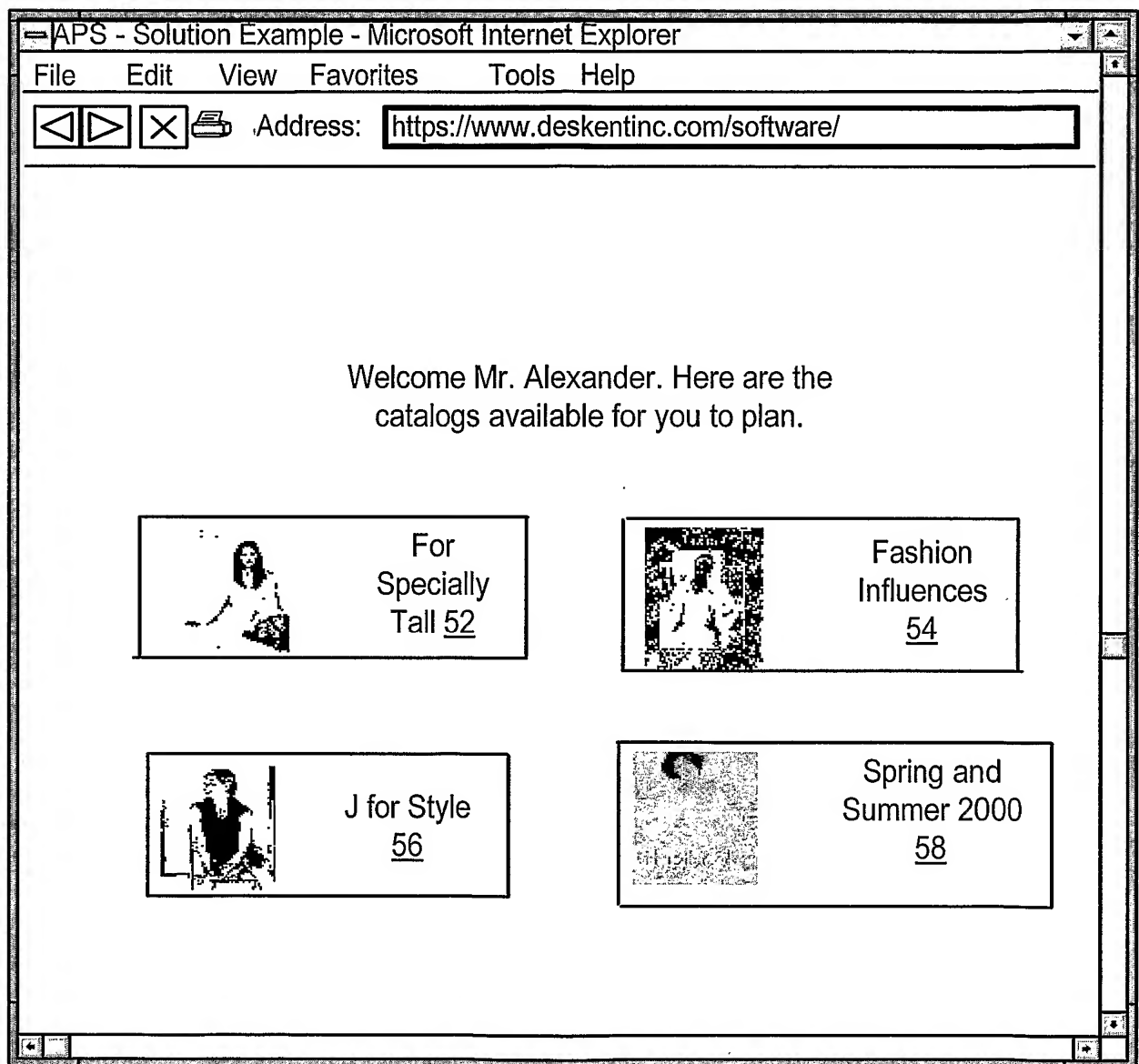
LOGIN

Username:

Password:

40

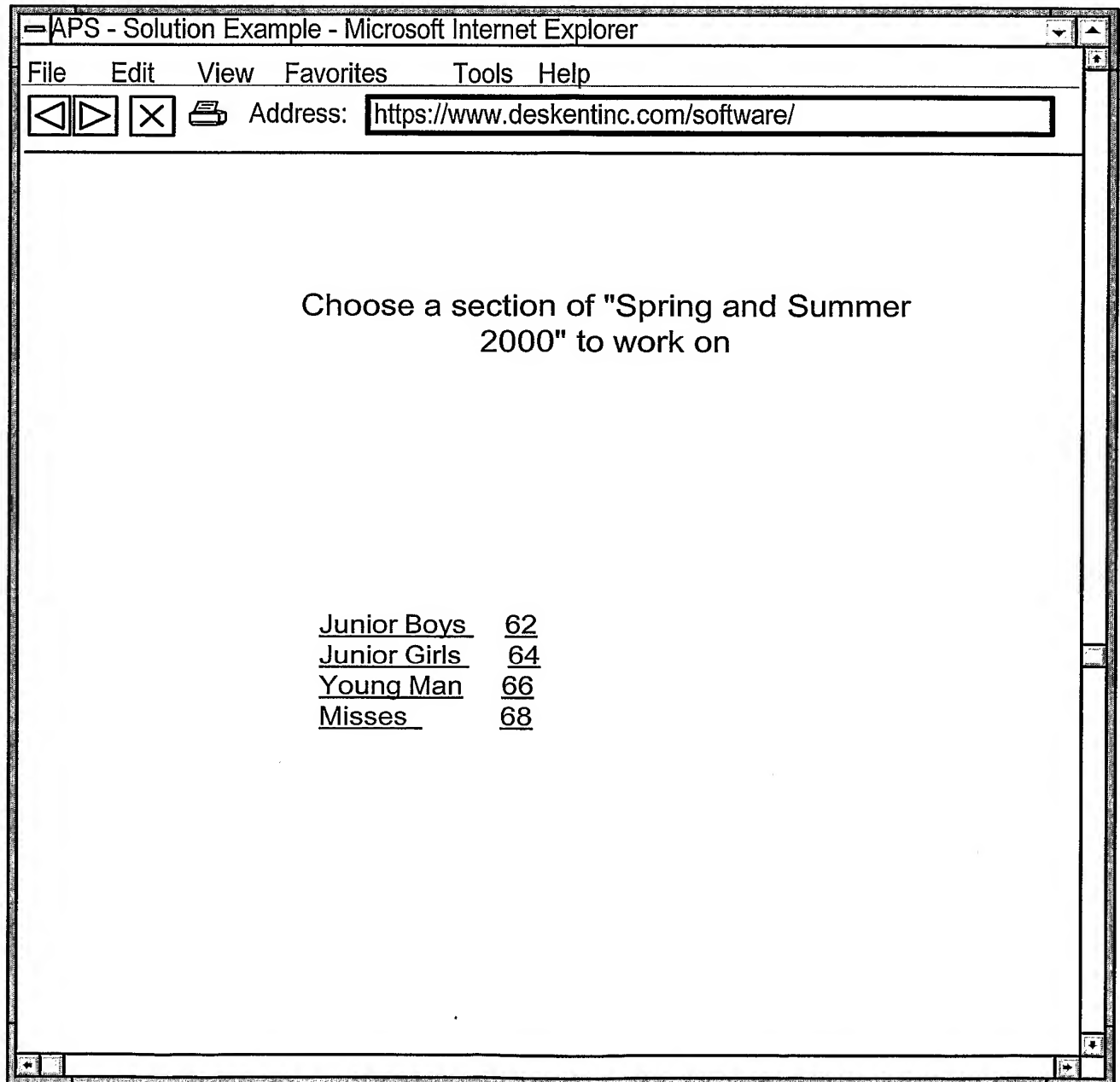
FIG. 2



50

FIG. 3





60

FIG. 4

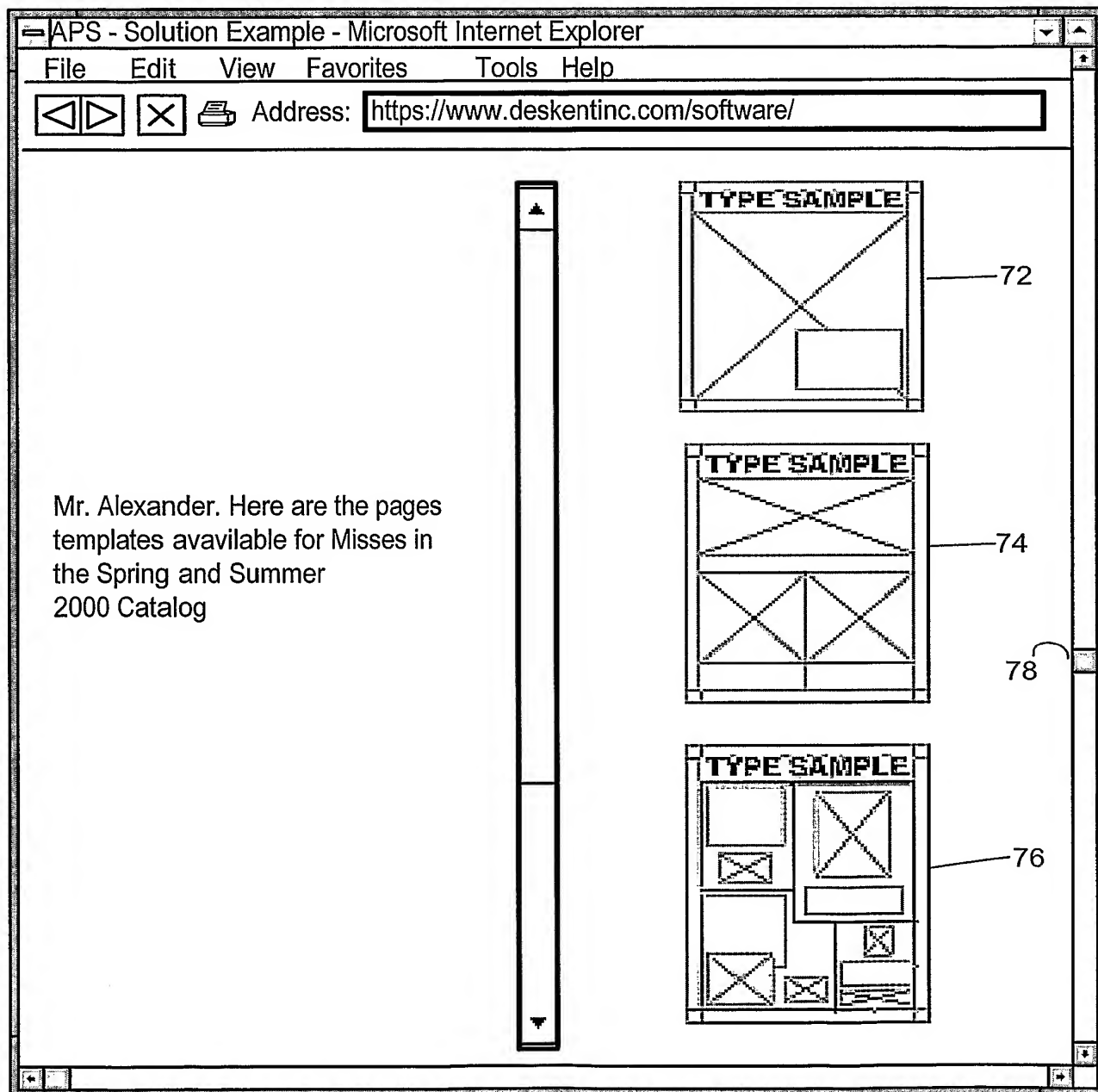
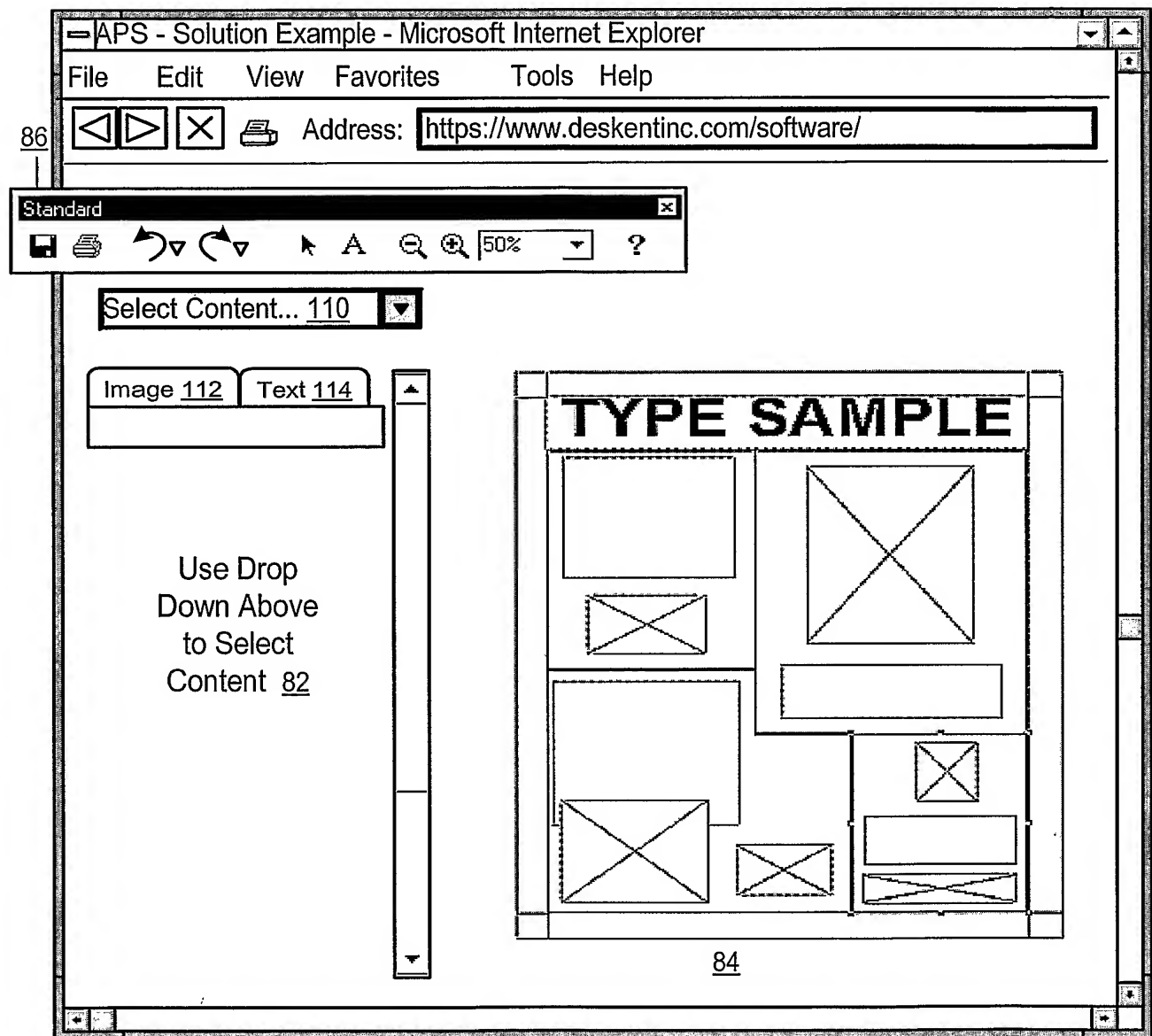
70

FIG. 5



80

FIG. 6

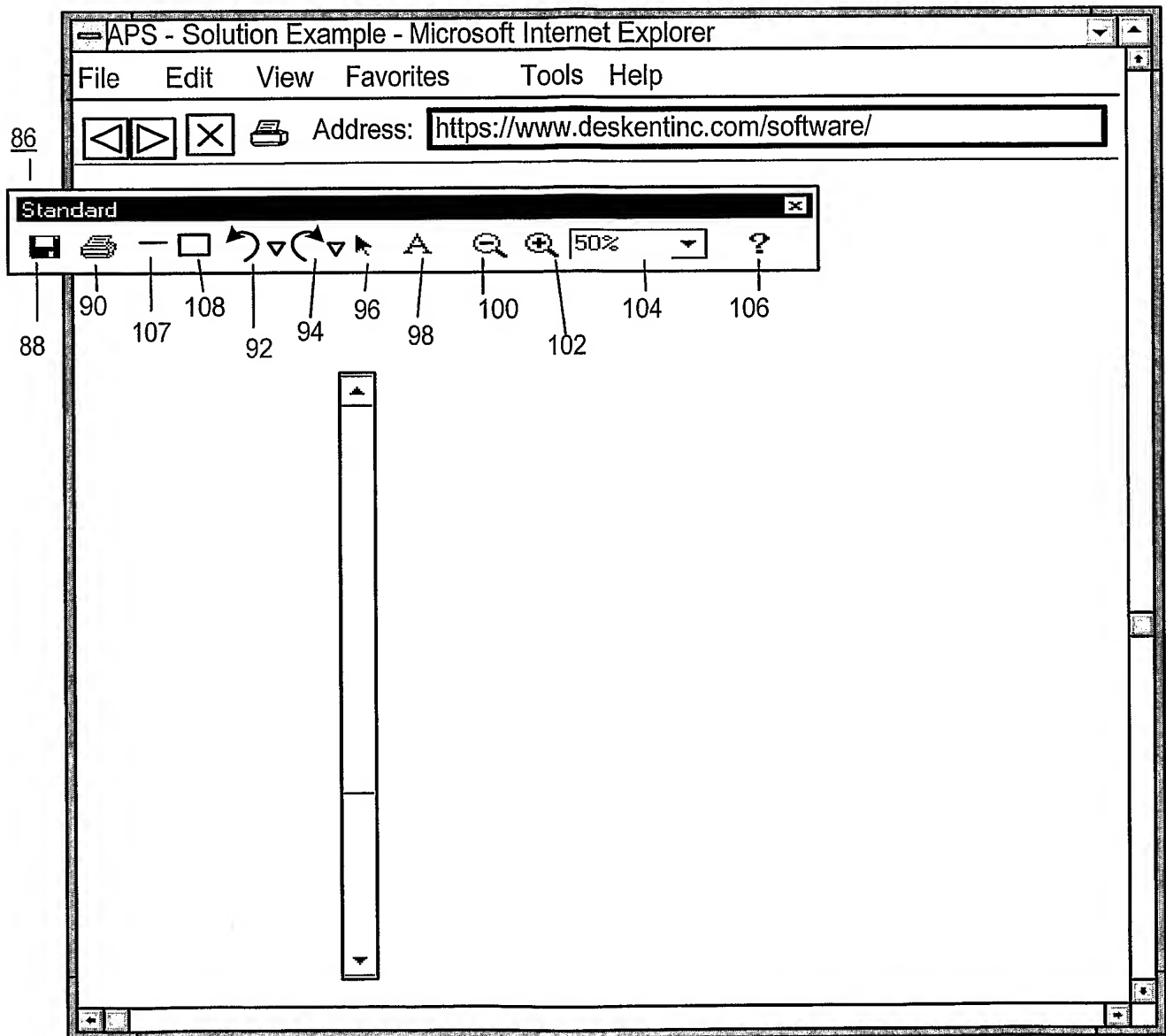


FIG. 7

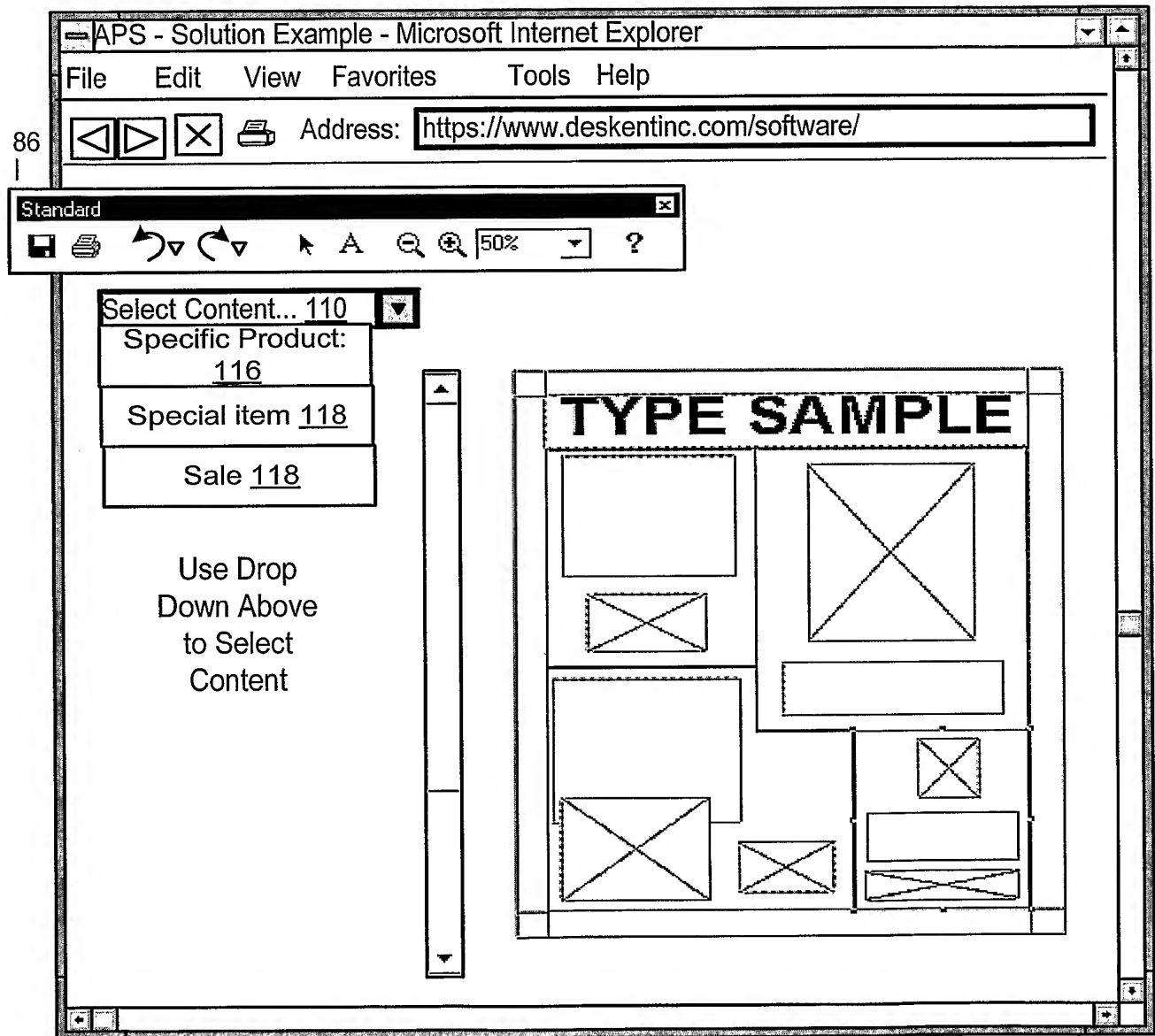


FIG. 8

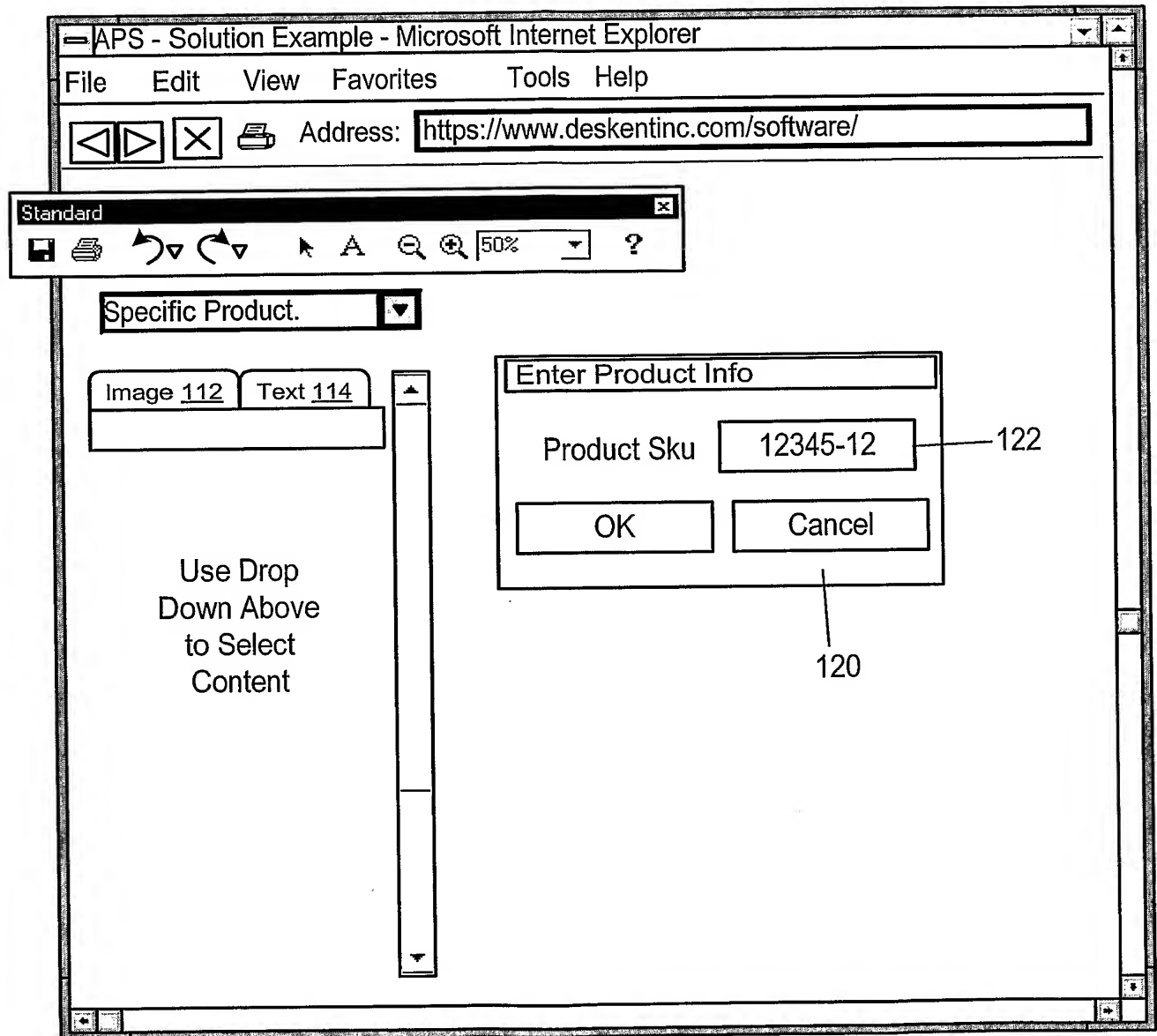


FIG. 9

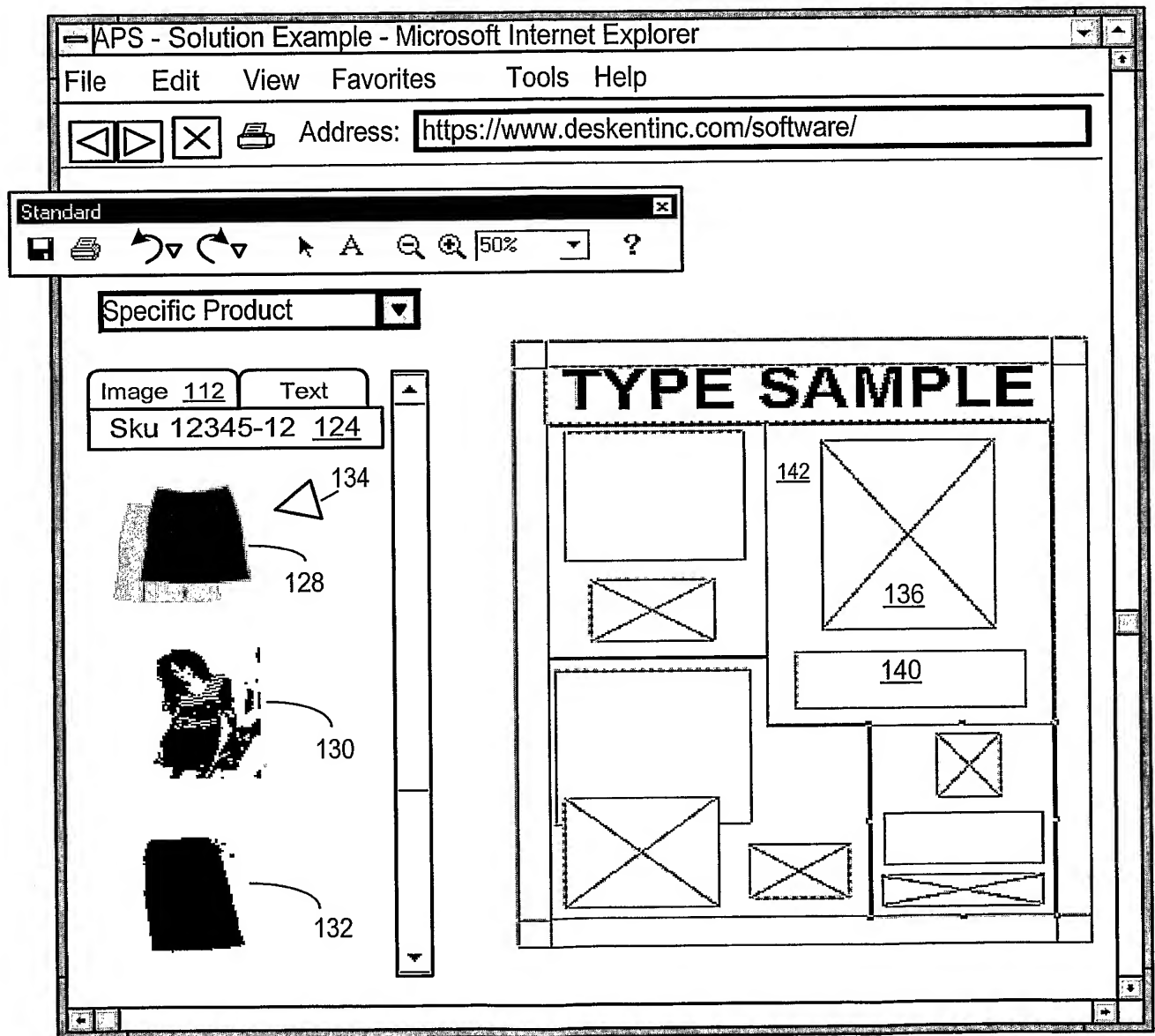


FIG. 10

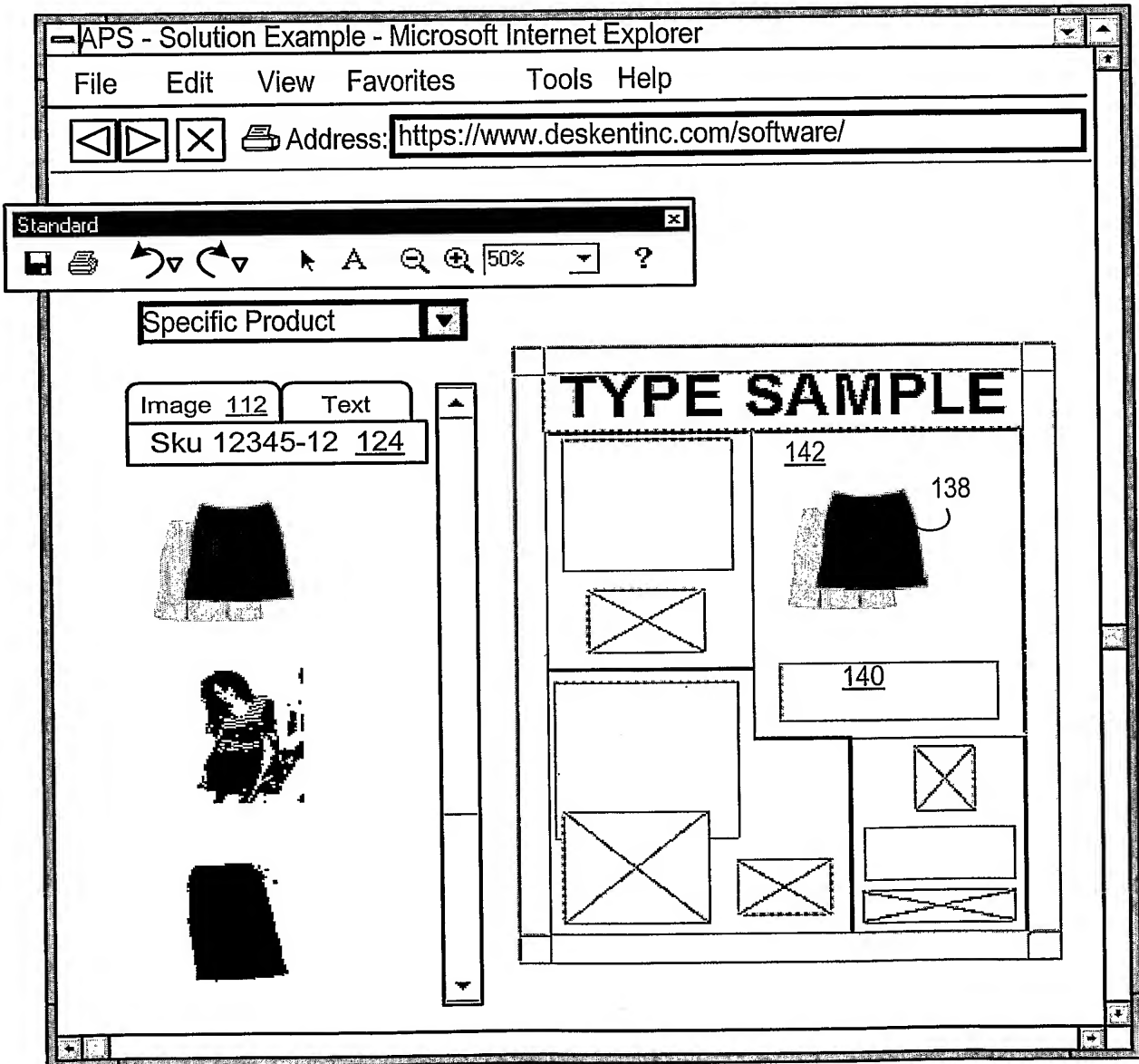


FIG. 11



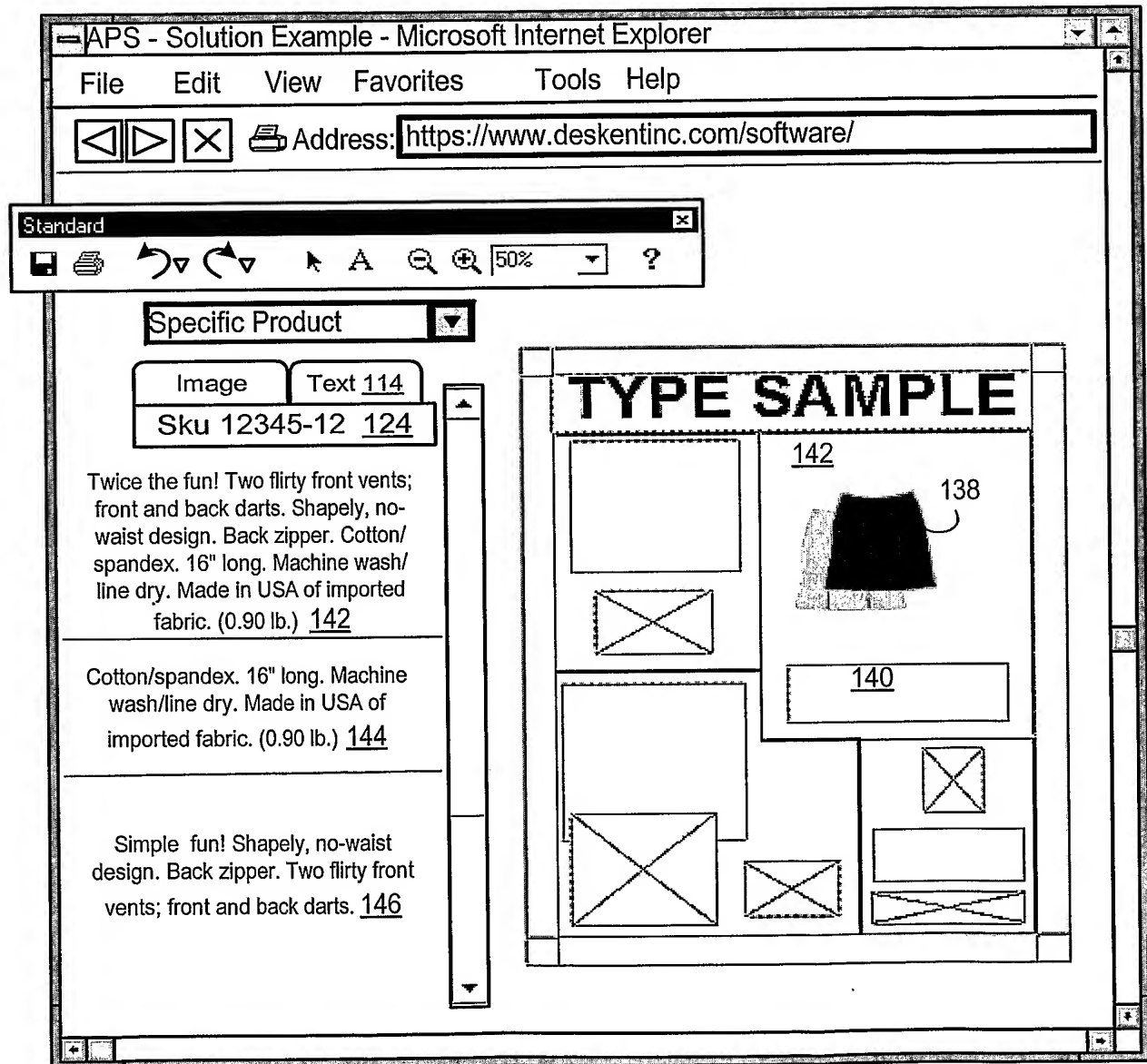


FIG. 12

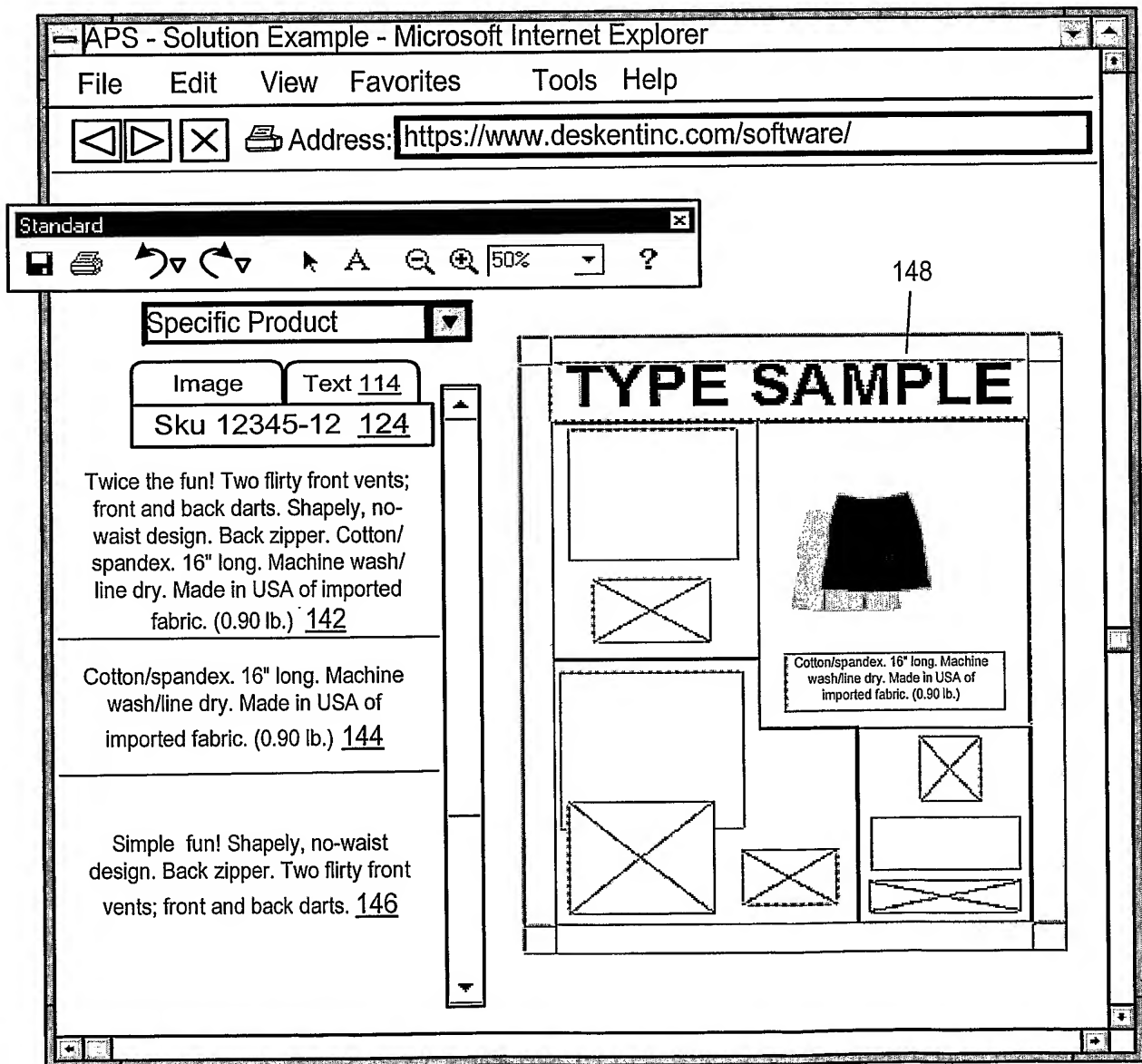


FIG. 13

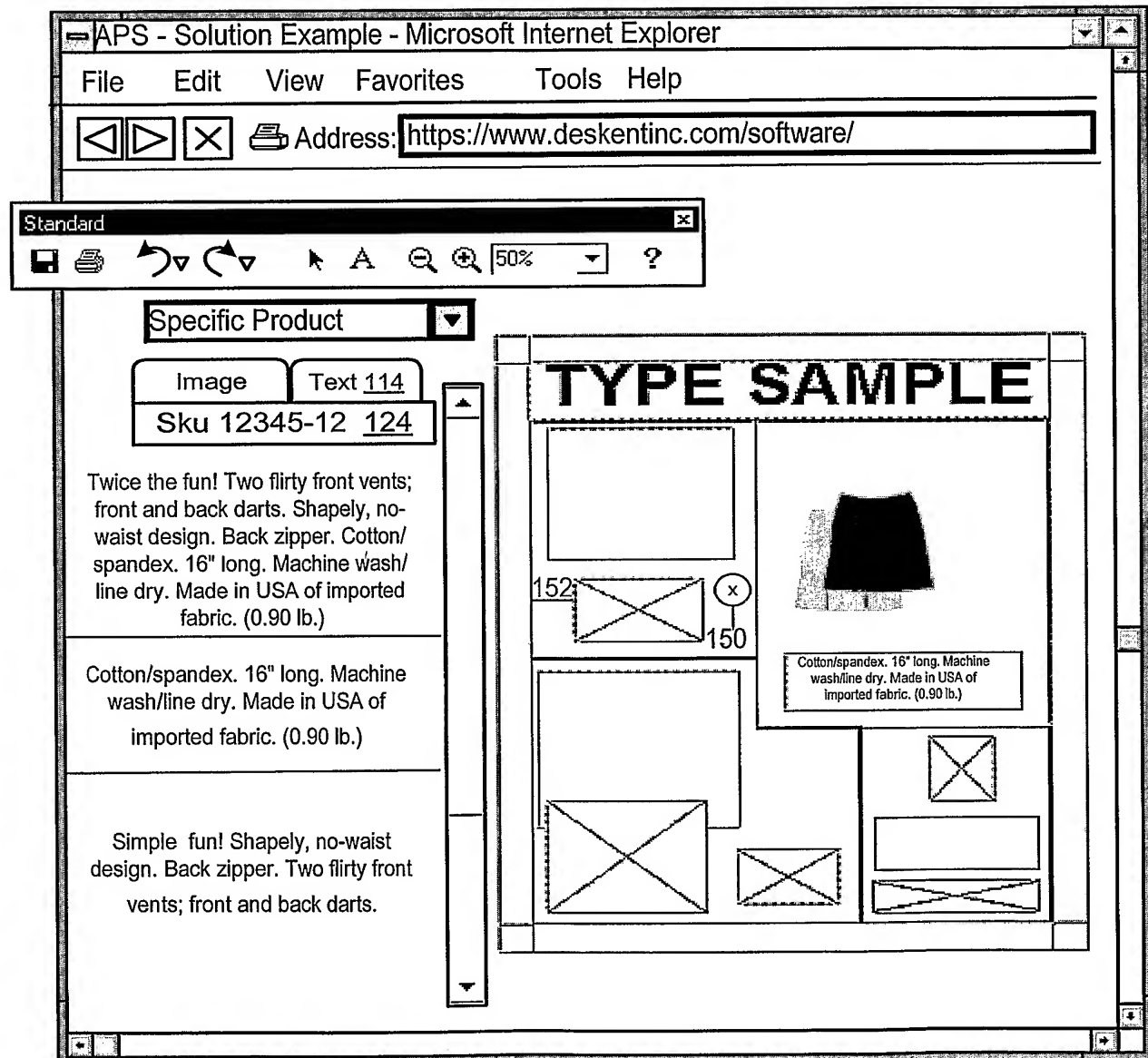


FIG. 14

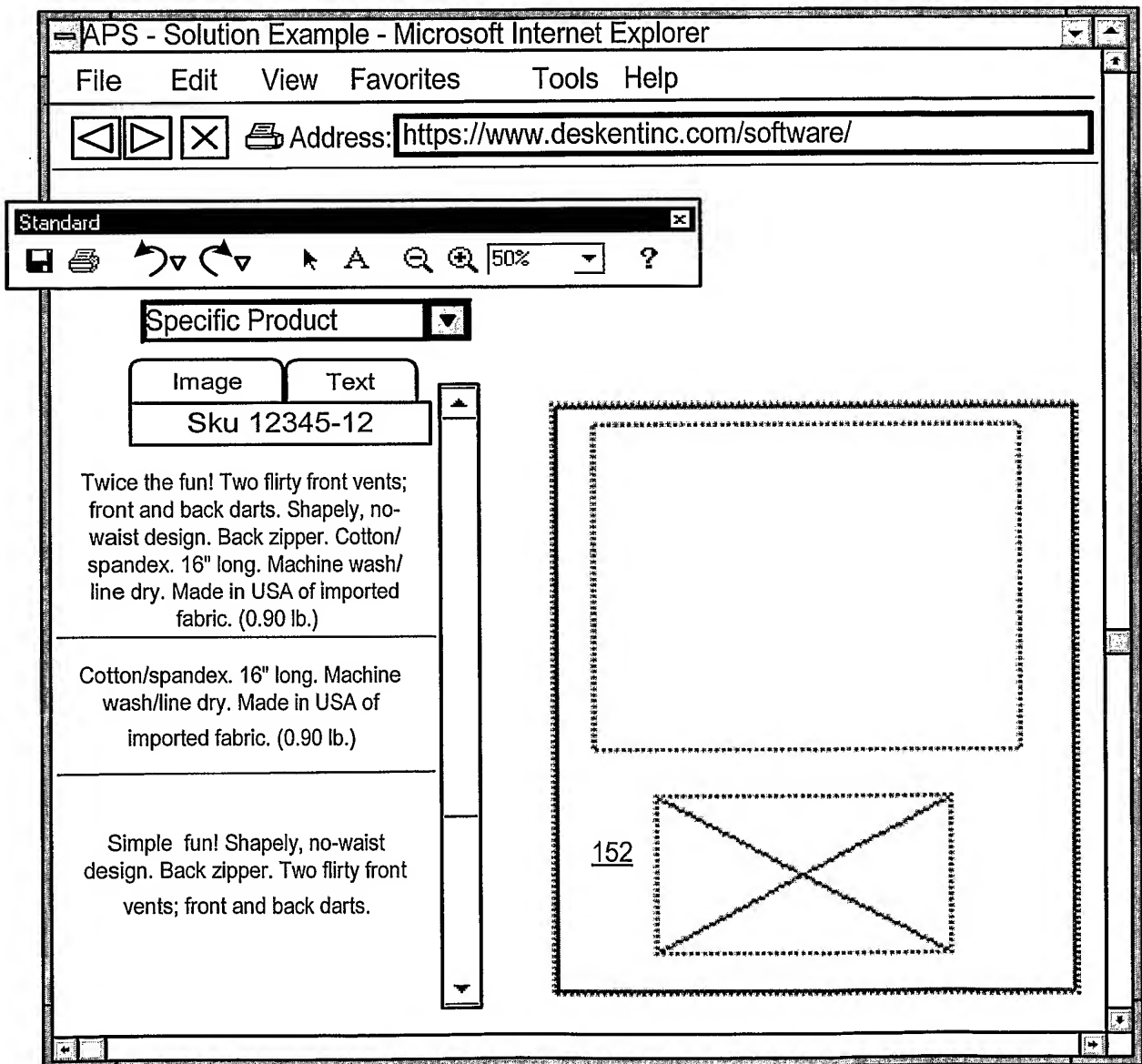


FIG. 15

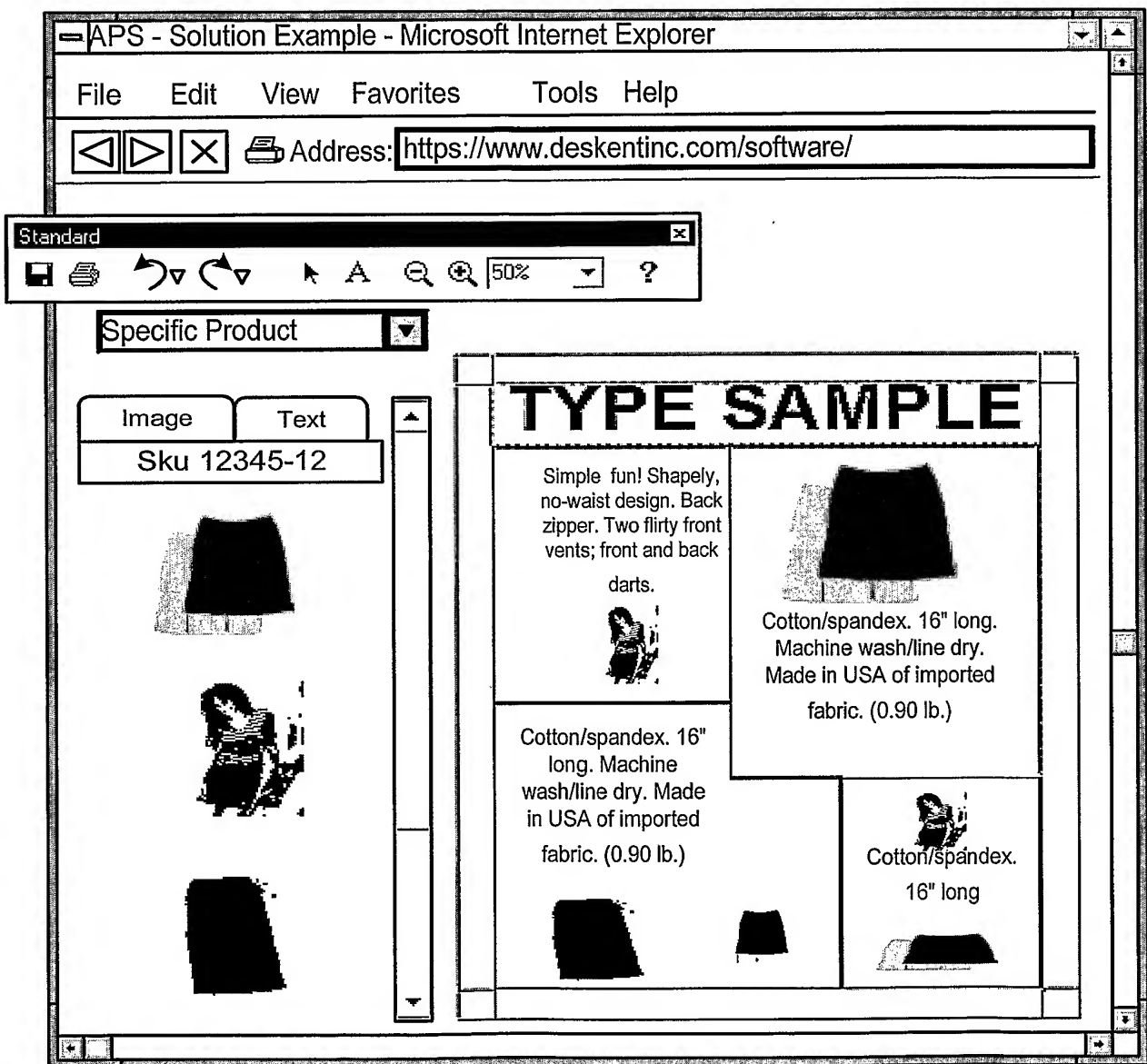


FIG. 16

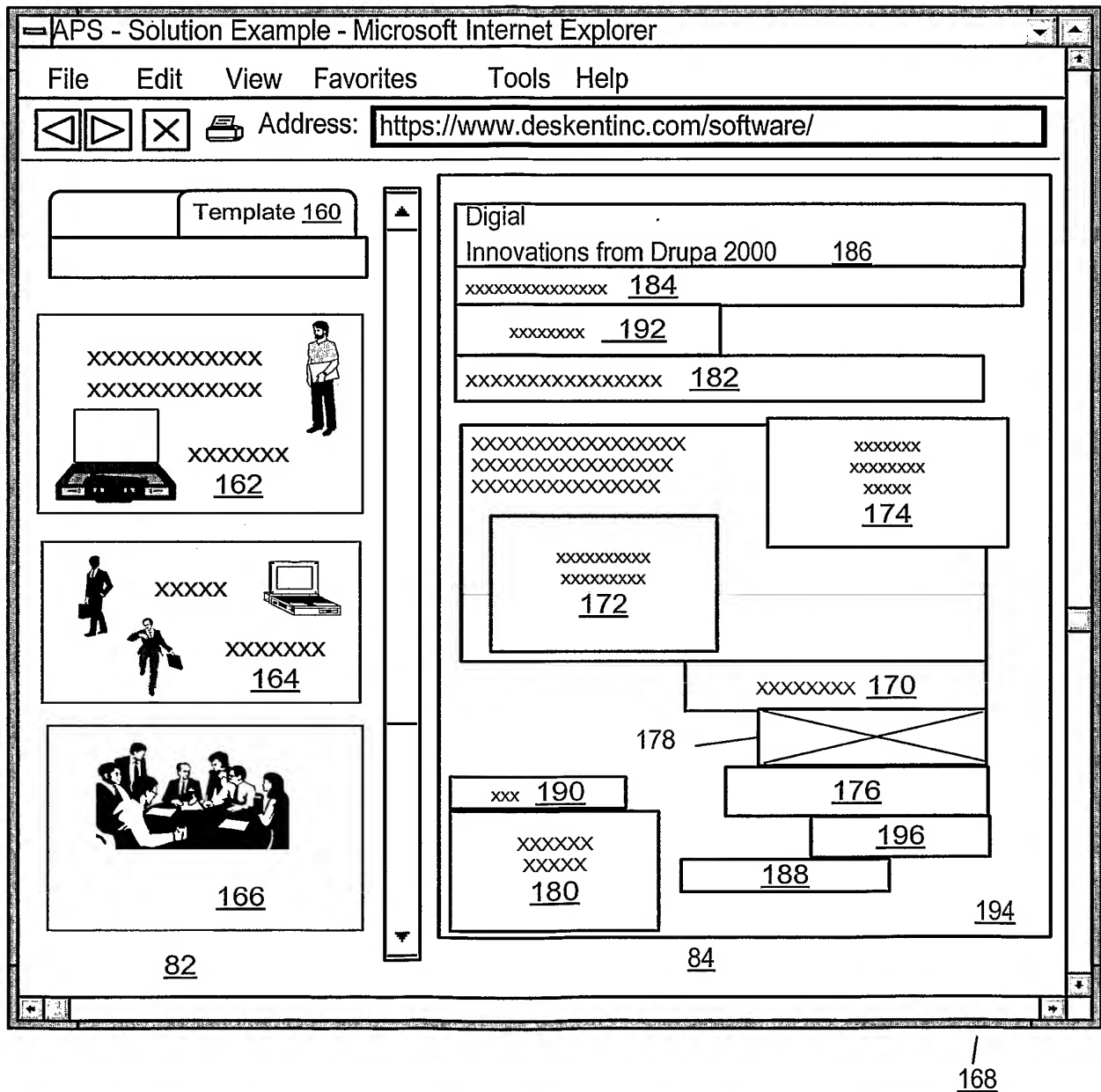


FIG. 17

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/50942

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 3/00  
US CL : 345/804,838,760; 707/513,501

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 345/804,838,854,760; 707/513,517,501

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
BRS

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,845,299 A (ARORA ET AL.) 01 December 1998 (01.12.1998) abstract.	1,14,27,40,53
Y,T	US 6,275,829 B1 (ANGIULO ET AL.) 14 August 2001 (14.08.2001) abstract.	3, 16, 29, 41, 54
Y ~	US 6,097,389 A (MORRIS ET AL.) 01 August 2000 (01.08.2000) abstract; fig. 12F.	1,14,27,40,53

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

04 April 2, 2002

Date of mailing of the international search report

018 MAY 2002

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Sy D. Luu

Telephone No. (703) 305-0409